TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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I hereby declare that the dissertation entitled "**TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE**" submitted towards partial fulfillment of the requirements for the award of **M.PHIL in Clinical Psychology** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Bholeshwar Prasad Mishra,** Professor & Head, Department of Clinical Psychology, **Dr. Ajit Sood,** Professor & Head, Department of Gastroenterology, and **Palak Upadhyay,** Assistant Professor, Department of Clinical Psychology. No part of this thesis has formed the basis for the award of any degree previously.

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DEDICATED TO MY PARENTS

MRS. HARBINDER KAUR GANDHI & MR. SURJEET SINGH GANDHI

In appreciation of their unconditional support and affection

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"The mind is beautiful because of the paradox. It uses itself to understand itself."

– Adam Elenbass

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ABBREVIATIONS

ACT- Acceptance and Commitment Therapy

CFT- Compassion Focused Therapy

IBD- Inflammatory Bowel Disease

HADS- Hospital Anxiety and Depression Scale

PSS- Perceived Stress Scale

PSY-FLEX-Psychological Flexibility Scale

NCDs- Noncommunicable Diseases

ACBS- Association for Contextual Behavioural Science

GBA- Gut-Brain Axis

CNS- Central Nervous System

ENS- Enteric Nervous System

UC- Ulcerative colitis

CD-Crohn’s disease

HPA- Hypothalamic-Pituitary-Adrenal Axis

CRF- Corticotrophin Releasing Factor

RNT- Repetitive Negative Thinking

GAD- Generalised Anxiety Disorder

IBS- irritable bowel syndrome

CI- Chronic Illnesses

QoL- Quality of Life

CBT- Cognitive Behavioural Therapy

OPD- Out Patient Department

IPD – Inpatient Department

GI- Gastrointestinal

RCT- Randomised Control Trial

RFT- Relational Frame Theory

ABSTRACT

Introduction: Inflammatory Bowel Disease is a chronic condition linked to psychological symptoms like depression, anxiety, and perceived stress. Acceptance and Commitment Therapy and Compassion-based interventions contribute to the development of psychological flexibility, ultimately fostering mental health and overall well-being.

Aim of Study: To study the effects of ACT along with compassion-based intervention on Depression, Anxiety, Perceived Stress and Psychological Flexibility in patients with Inflammatory Bowel Disease.

Materials and methods: The research involved 100 patients with Inflammatory Bowel Disease from the Gastroenterology department's Inpatient (IPD) and Outpatient (OPD) units. They underwent psychological evaluations before and after an intervention using three scales: Hospital Anxiety and Depression Scale, Perceived Stress Scale, and Psychological Flexibility Scale. The 100 patients were split into two groups: an experimental group of 50 patients who received Acceptance and Commitment Therapy along with Compassion-based intervention, and a control group of 50 patients who didn't receive the intervention. The study aimed to compare the two groups in terms of depression, anxiety, perceived stress, and psychological flexibility.

Results: Acceptance and Commitment Therapy and Compassion-based intervention had a significant and favourable influence on the manifestations of Depression, Anxiety, Perceived Stress, and Psychological Flexibility.

Conclusion: The study aims to enhance the understanding of how to effectively address and manage Depression, Anxiety, and perceived stress in patients with Inflammatory Bowel Disease. The findings will carry direct and tangible significance, facilitating the integration of psychotherapeutic interventions for a comprehensive approach to managing Inflammatory Bowel Disease.

Keywords: Inflammatory Bowel Disease, Acceptance and Commitment Therapy, Compassion.

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INTRODUCTION

Modern lifestyle and rapid environmental change are the probable causes of alterations in the diversity of the human gut microbiota. Aberrations in the gut microbiome and intestinal homeostasis have the potential to have multisystem consequences, with obvious effects on physiologic, immunologic, and metabolic processes in human health. A wide variety of inflammatory disorders, including allergy disease, asthma, inflammatory bowel disease (IBD), obesity, and related noncommunicable diseases (NCDs), are becoming more prevalent, and changes in microbial composition are thought to be the cause. Indications for neurodevelopment and mental health are also present.[1]

Inflammatory Bowel Disease

Inflammatory bowel disease (IBD) is a group of illnesses characterised by chronic intestinal inflammation. There are two types of IBD Crohn's Disease and Ulcerative Colitis. In ulcerative colitis, inflammation and sores (ulcers) occur along the superficial lining of the large intestine (colon) and rectum. Crohn's disease is an inflammatory bowel disease (IBD) characterised by inflammation of the digestive tract lining, which affects the deeper layers of the digestive tract. In Crohn's disease, the damaged areas appear in patches that are next to areas of healthy tissue however in Ulcerative Colitis, damaged areas are continuous usually starting at the rectum and spreading further into the colon. Hence, the colon, or large intestine, is the only organ affected by ulcerative colitis. In Crohn's disease inflammation can occur in any part of the gastrointestinal tract but typically affects the small intestine and colon.

The exact cause of IBD is unknown, but IBD is the result of a weakened immune system. Possible causes are: The immune system responds incorrectly to environmental triggers, such as a virus or bacteria, which causes inflammation of the gastrointestinal tract. There also appears to be a genetic component. Someone with a family history of IBD is more likely to develop this inappropriate immune

response.[2] Research indicates that those who have the disorder may experience immune system reactions to food, germs, and other gastrointestinal items. White blood cells are sent to the intestines by the immune system in reaction, which leads to inflammation and other symptoms such as abdominal pain. Additionally, IBD makes it difficult for the intestines to absorb critical nutrients from digested food, which can result in undernutrition. Men and women are equally likely to be diagnosed with IBD. The majority of patients are diagnosed between the ages of 15 and 30. The illness, however, might appear at any age.

IBD symptoms tend to get worse over time if untreated. Chronic inflammation can occasionally result in serious side effects like intestinal lining rips or open sores known as ulcers. Furthermore, having IBD for more than eight years necessitates routine testing to check for the condition and raises the risk of colorectal cancer. People with severe intestinal damage and those who have a family history of colorectal cancer are at a higher risk. For the duration of the patient's life, Crohn's disease and ulcerative colitis frequently require ongoing medical care and observation.[3]

Crohn's disease

Inflammation can develop anywhere along the gastrointestinal system in Crohn's disease. The ileum, which is the terminus of the small intestine, and the beginning of the colon, or big intestine, are frequently affected. There may be a healthy intestine between diseased regions of Crohn's disease, which can damage the full thickness of the intestinal or colon wall. The lining of the intestines may develop ulcers as a result of chronic inflammation. Severe Crohn's disease in some sufferers can lead to fistulas, or ulcers that create tunnels through the intestinal wall to join two organs. The intestines or the gut and another organ, such as the bladder or skin, may be connected by a fistula. Intestinal strictures, or scarring, can also result from Crohn's disease. This could result in an obstruction that narrows the intestines and causes constipation and discomfort.

Since Crohn's disease typically affects the small intestine, its early stages frequently do not involve any worrisome symptoms. Years may pass for some patients with erratic bowel movements or discomfort before they are given an IBD diagnosis. Consistent diarrhoea, bloody stools, abdominal pain, constipation, loss of appetite, exhaustion, and unexpected weight loss are some of the symptoms that often develop with time. One may encounter one or more symptoms that seem unrelated to Crohn's disease if the inflammatory reaction that produces gastrointestinal symptoms spreads to other regions of the body. They could include fever, canker sores, skin rashes, arthritis, and eye inflammation, which could impair vision or produce discomfort or redness.[3]

Ulcerative Colitis

Inflammation in the digestive system is a feature of ulcerative colitis, like Crohn's disease. But in this situation, the only part of the colon that is impacted is the lining. Multiple intestinal wall ulcers develop as a result of ulcerative colitis. The bottom portion of the large intestine, close to the rectum, is typically the first area of ulcerative colitis to be affected, and symptoms appear immediately. They include bowel motions that are frequent and hurried, persistent diarrhoea, incontinence, rectal bleeding and pain, bloody stools, cramps, and abdominal pain. An individual may also endure appetite loss, sudden weight loss, exhaustion, skin rashes, and arthritis because ulcerative colitis is thought to be brought on by an aberrant immune system reaction.[4]

Symptoms:

IBD symptoms fluctuate. They may be mild or severe, and they may appear suddenly or come on gradually. Periods of active IBD symptoms are IBD flares. IBD symptoms include abdominal pain, diarrhoea (sometimes alternating with constipation), loss of appetite or unexplained weight loss, mucus or blood in stool, and upset stomach. IBD may also cause fatigue, fever, Itchy, red, painful eyes, joint pain,

nausea and vomiting, skin rashes and sores (ulcers), and vision problems.[5,6]

Complications:

People with IBD have a higher risk of developing colon (colorectal) cancer. Other potential complications include anaemia (low levels of red blood cells) or blood clots, kidney stones, liver disease, such as cirrhosis and primary sclerosing cholangitis (bile duct inflammation), malabsorption and malnutrition (inability to get enough nutrients through the small intestine), osteoporosis, perforated bowel and toxic megacolon (severe intestinal swelling).

The complications of ulcerative colitis generally develop during the first two years of the disease. The mortality is higher than expected and the highest likelihood of colectomy also occurs early in the disease. Mortality in Crohn's disease is greater than expected, especially in males. For both conditions, the overall mortality has decreased steadily and currently is less than 5%. Ulcerative colitis is curable with proctocolectomy and ileostomy. In Crohn's disease, intestinal resection and anastomosis are followed by recurrence in the majority of patients. The recurrence rate after proctocolectomy and ileostomy for Crohn's disease of the colon also is considerable, ranging from 20% to 35%. In ulcerative colitis, the more the colon is involved, the more frequent and more serious the complications. In Crohn's disease, the anatomic pattern of disease tends to predict the type and extent of complications. Both ulcerative colitis and Crohn's disease appear to follow a more severe course in children and adolescents. Patients with either ulcerative colitis or Crohn's disease are at increased risk for later cancer development. In ulcerative colitis, the excess risk is limited to colorectal cancer. Patients with Crohn's disease have increased cancer rates for both the small and large bowel. Finally, most patients with these diseases can maintain normal occupations and enjoy reasonably stable social and economic situations.[7,8]

Prevalence

In the past, North America and Europe had the highest rates of inflammatory bowel disease (IBD), with a north-south gradient. IBD in general and childhood IBD in particular have increased significantly over the past century, and over the past 50 years, IBD has extended throughout the developing globe. Family members with IBD are the biggest risk factor for developing the condition. More than half of pairs are detected within two years of one another, and concordance rates for dizygotic twins are between 4% to 50%, compared to 50% for monozygotic twins. However, the majority of IBD patients do not have a family relative who is afflicted. There are more than 200 genes linked to a higher risk of IBD, although most of these connections are small, with odds ratios between 1.2 and 2.0, suggesting that the environment also plays a role.

IBD is more prevalent in urban than rural areas and is linked to "good standards" of childhood household cleanliness. People who relocate from low-incidence areas to high-incidence areas are more likely to develop IBD, and the younger they are when they relocate, the higher their risk will be. Additionally, the risk of acquiring IBD is reduced in those who move from locations with a high incidence to those with a low incidence of IBD. Together, these results strongly imply that specific environmental exposures occurring in the early years of life may cause inflammatory bowel disease in people who are genetically predisposed to it. Finding out what such exposures might be is the key.[9]

Two population-based studies have examined the prevalence of UC in India. Khosla et al. carried out the first such study in Haryana, North India, in 1984. According to the study, which had 21,971 participants, there were 42.8 UC cases per 100,000 people. The second study, carried out 15 years later by Sood et al. from Punjab (this state borders Haryana), used a cluster sampling method to screen a population of 51,910 people, of whom two-thirds resided in rural and the remaining

third in urban areas of Punjab. A total of 23 patients received UC diagnoses, yielding a 44.3/100,000 prevalence rate. One year later, the incidence was recalculated during a second visit to the same region, and it was found to be 6.02 per 100,000. These statistics demonstrate once further that UC is common in India. However, despite evidence to the contrary from data from other regions, these findings contradict the widespread perception that the incidence of IBD is increasing in Asian nations. India has the largest disease burden among Asian countries, according to a comparison of incidence and prevalence rates with other nations.[10]

Depression and Anxiety

Depression and anxiety are emotional problems that have been linked to inflammatory bowel disease. Emotional disorders are a group of chronic and recurrent psychiatric disorders that cause severe impairment in quality of life, productivity, and interpersonal functioning. Depression is characterised by persistent sadness of mood, fatiguability, and anhedonia, as well as feelings of helplessness and hopelessness, whereas anxiety is characterised by overwhelming feelings of worry, nervousness, and fear, as well as autonomic overactivity symptoms such as light-headedness, sweating, epigastric discomfort, dizziness, and dry mouth.[11]

According to ICD-10, In typical depressive episodes, the individual usually suffers from depressed mood, loss of interest and enjoyment, and reduced energy leading to increased fatiguability and diminished activity. Marked tiredness after only slight effort is common.

Other common symptoms are:

(a)reduced concentration and attention;

(b)reduced self-esteem and self-confidence;

(c)ideas of guilt and unworthiness (even in a mild type of episode);

(d)bleak and pessimistic views of the future;

(e)ideas or acts of self-harm or suicide;

(f)disturbed sleep

(g)diminished appetite.

According to ICD 10, the primary symptoms of anxiety must be present most days for at least several weeks at a time, and usually for several months.

These symptoms should usually involve elements of:

(a)apprehension (worries about future misfortunes, feeling "on edge", difficulty in concentrating, etc.).

(b)motor tension (restless fidgeting, tension headaches, trembling, inability to relax).

(c)autonomic overactivity (light-headedness, sweating, tachycardia or tachypnoea, epigastric discomfort, dizziness, dry mouth, etc.).[12]

It has been hypothesised that there is a relationship between chronic diseases and the emergence of depression and anxiety symptoms. This may have an impact on a patient's capacity to manage their illness, as well as their degree of general health and quality of life (Gerontoukou et al., 2015).[13]

Perceived Stress

Perceived stress refers to an individual's sentiments or perceptions about how stressed they are. Because of the chronic and severe nature of IBD, patients may experience stress associated with unpredictability and uncontrollability. Factors such as how often the patient has to deal with bothersome hassles, how much their life is changing as a result of the condition, and the confidence they have in their capacity to deal with problems or challenges are affected. What counts more than the types or frequency of stressful events that a person is experiencing is how they feel about the general stressfulness

of their lives and their ability to handle such stress. People may have comparable terrible life circumstances but may have various perspectives on them, resulting in varying degrees of impact or severity. Personality, coping resources, and support are all important factors to consider. As a result, perceived stress represents the relationship between a person and their surroundings, as well as their appraisals or assessments of it.[14]

Targownik et al. (2015) found a significant correlation between gastrointestinal symptoms and perceived stress. For both Crohn's Disease and Ulcerative Colitis, perceived stress has been linked to symptom activity.[15]

Psychological Flexibility

Psychological Flexibility is the ability to remain open and present-focused and to alter or persist in behaviour in response to changing internal and external conditions is referred to as psychological flexibility. It's a multifaceted psychological construct with emotional, cognitive, and behavioural components. Psychological flexibility has been linked to mental health and resilience in both longitudinal and cross-sectional studies, while a lack of psychological flexibility has been linked to psychopathology.[16]

According to Kashdan and Rottenberg, psychological flexibility is the ability to "recognize and adapt to various situational demands; shift mindsets or behavioural repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviours that are congruent with deeply held values". Their definition captures two significant points about psychological flexibility: that it is a multifaceted trait, manifesting across many life domains, and that it is a dynamic that expresses itself through "repeated transactions between people and their environmental contexts".[17]

Depression is a common and troublesome condition that is characterised by a loss of flexibility in a variety of ways. Firstly, losing flexibility is one of the main signs of depression. To be diagnosed with depression, a person must describe symptoms spanning several situations when they feel consistently depressed and/or anxious not being able to derive pleasure. In phenomenology, the patient frequently perceives the surroundings The world is described as undifferentiated, flat, dull, empty, and unprofitable. Equally, the future is perceived as a flat, unprofitable plain of misery. Given this awful sensation of mundaneness, it makes sense that sufferers may believe their position is bleak, which is why behavioural patterns frequently become faltered (i.e., individuals still in bed).

Likewise, persons with anxiety often engage in the environment with a reduced and stereotyped repertory of behavioural responses. This behavioural inflexibility takes many forms. For example, individuals with generalized anxiety disorder tend to worry reflexively across situations. Individuals with OCD are repeatedly flooded with thoughts of upsetting nature which often prompt ritualistic behaviour. People with excessive social anxiety manage their social fears by concealing and hiding ongoing feelings and aspects of the self, interfering with the generation of positive events and the ability to take advantage of rewarding opportunities when they arise. Finally, as with depression, anxiety disorders are associated with inflexibility of physiologic reaction. Most significantly, research has repeatedly demonstrated that people with anxiety disorders have less flexibility in their autonomic responses.[18]

Apart from the psychosocial components of Inflammatory bowel disease discussed, there is a scarcity of empirical data on the psychological management of Inflammatory bowel disease patients in India (Moon et al., 2020).[19]

Acceptance and Commitment Therapy

Acceptance and commitment therapy (ACT, typically pronounced as the word "act") is a form of psychotherapy, as well as a branch of clinical behaviour analysis. It is an empirically-based psychological intervention that uses acceptance and mindfulness strategies along with commitment and behaviour-change strategies to increase psychological flexibility. This approach was originally termed comprehensive distancing.

Steven C. Hayes developed the treatment starting around 1982 to create an approach that integrates both covert conditioning and behaviour therapy. Acceptance and Commitment Therapy (ACT) can be defined as “a psychological intervention based on modern behavioural psychology, including Relational Frame Theory, that applies mindfulness and acceptance processes, and commitment and behaviour change processes, to the creation of psychological flexibility”.

Experiential avoidance is defined as the “phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioural predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them” (Hayes et al., 1996).

According to the Association for Contextual Behavioural Science (ACBS). ACT is: “a unique empirically based psychological intervention that uses acceptance and mindfulness strategies, together with commitment and behaviour change strategies, to increase psychological flexibility.”

According to Harris, the six core processes of ACT guide patients through therapy and provide a framework for developing psychological flexibility. These six core processes of ACT include acceptance, cognitive defusion, being present, self as context, values, and committed action.

The general goal of ACT is to increase psychological flexibility – the ability to contact the present moment more fully as a conscious human being, and to change or persist in behaviour when doing so serves valued ends. Psychological flexibility is established through six core ACT processes. Each of these areas is conceptualized as a positive psychological skill, not merely a method of avoiding psychopathology.

Acceptance

Acceptance is taught as an alternative to experiential avoidance. Acceptance involves the active and aware embrace of those private events occasioned by one's history without unnecessary attempts to change their frequency or form, especially when doing so would cause psychological harm. For example, anxiety patients are taught to feel anxiety, as a feeling, fully and without defence; pain patients are given methods that encourage them to let go of a struggle with pain, and so on. Acceptance (and defusion) in ACT is not an end in itself. Rather acceptance is fostered as a method of increasing values-based action.

Cognitive Defusion

Cognitive defusion techniques attempt to alter the undesirable functions of thoughts and other private events, rather than trying to alter their form, frequency or situational sensitivity. Said another way, ACT attempts to change the way one interacts with or relates to thoughts by creating contexts in which their unhelpful functions are diminished. There are scores of such techniques that have been developed for a wide variety of clinical presentations. For example, a negative thought could be watched dispassionately, repeated out loud until only its sound remains, or treated as an externally observed event by giving it a shape, size, colour, speed, or form. A person could thank their mind for such an interesting thought, label the process of thinking ("I am having the thought that I am no good"), or examine the historical thoughts, feelings, and memories that occur while they experience that thought. Such procedures attempt to reduce the literal quality of the

thought, weakening the tendency to treat the thought as what it refers to ("I am no good") rather than what it is directly experienced to be (e.g., the thought "I am no good"). The result of defusion is usually a decrease in the believability of, or attachment to, private events rather than an immediate change in their frequency.

Being Present

ACT promotes ongoing non-judgmental contact with psychological and environmental events as they occur. The goal is to have clients experience the world more directly so that their behaviour is more flexible and thus their actions more consistent with the values that they hold. This is accomplished by allowing workability to exert more control over behavior; and by using language more as a tool to note and describe events, not simply to predict and judge them. A sense of called "self as process" is actively encouraged: the defused, non-judgmental ongoing description of thoughts, feelings, and other private events.

Self as Context

As a result of relational frames such as I versus You, Now versus Then, and Here versus There, human language leads to a sense of self as a locus or perspective and provides a transcendent, spiritual side to normal verbal humans. This idea was one of the seeds from which both ACT and RFT grew and there is now growing evidence of its importance to language functions such as empathy, theory of mind, sense of self, and the like. In brief, the idea is that "I" emerges over large sets of exemplars of perspective-taking relations (what are termed in RFT "deictic relations"), but since this sense of self is a context for verbal knowing, not the content of that knowing, its limits cannot be consciously known. Self as context is important in part because, from this standpoint, one can be aware of one's own flow of experiences without attachment to them or an investment in which particular experiences occur: thus, defusion and acceptance are

fostered. Self as context is fostered in ACT by mindfulness exercises, metaphors, and experiential processes.

Values

Values are chosen qualities of purposive action that can never be obtained as an object but can be instantiated moment by moment. ACT uses a variety of exercises to help a client choose life directions in various domains (e.g. family, career, spirituality) while undermining verbal processes that might lead to choices based on avoidance, social compliance, or fusion (e.g. “I should value X” or “A good person would value Y” or “My mother wants me to value Z”). In ACT, acceptance, defusion, being present, and so on are not ends in themselves; rather they clear the path for a more vital, values-consistent life.

Committed Action

Finally, ACT encourages the development of larger and larger patterns of effective action linked to chosen values. In this regard, ACT looks very much like traditional behaviour therapy and almost any behaviourally coherent behaviour change method can be fitted into an ACT protocol, including exposure, skills acquisition, shaping methods, goal setting, and the like. Unlike values, which are constantly instantiated but never achieved as an object, concrete goals that are values consistent can be achieved and ACT protocols almost always involve therapy work and homework linked to short, medium, and long-term behaviour change goals. Behaviour change efforts in turn lead to contact with psychological barriers that are addressed through other ACT processes (acceptance, defusion, and so on).

Taken as a whole, each of these processes supports the other and all target psychological flexibility: the process of contacting the present moment fully as a conscious human being and persisting or changing behaviour in the service of chosen values.

The six processes can be chunked into two groupings. Mindfulness and acceptance processes involve acceptance, defusion, contact with the present moment, and self as context. Indeed, these four processes

provide a workable behavioural definition of mindfulness (Fletcher & Hayes,2005).[20]

Commitment and behaviour change processes involve contact with the present moment, self as context, values, and committed action. Contact with the present moment and self as context occurs in both groupings because all psychological activity of conscious human beings involves the now as known.

In theoretical and process terms ACT can be described as a psychological intervention based on modern behavioural psychology, including Relational Frame Theory, and evolutionary science, that applies mindfulness and acceptance processes, and commitment and behaviour change processes, to the creation of psychological flexibility. The focus of ACT is not the elimination of difficult feelings rather, it is to be present with what life brings and to "move toward valued behaviour".

Acceptance and commitment therapy invites people to open up to unpleasant feelings, learn not to overreact to them, and not avoid situations where they are invoked. By strengthening the psychological flexibility of individuals with IBD, ACT helps them to learn to accept and handle discomfort and pain. Its therapeutic effect aims to be a positive spiral where a greater understanding of one's emotions leads to a better understanding of the truth. In the ACT, "truth" is measured through the concept of "workability", or what works to take another step toward what matters (e.g., values, meaning).[21-23]

The compassion-based intervention

The compassion-based intervention, created by Paul Gilbert in the early twenty-first century, is thought to be anchored in a soothing-affiliative affect regulation system that combats threat-focused emotional and cognitive patterns including despair, anxiety, shame, and self-criticism.

Compassion is a growing area of interest within psychotherapy research. It has been found to have several benefits for our

physiological health, including influencing genetic expression mental health, and emotion regulation and in improving interpersonal and social relationships.

There have been several laboratory-based experiments that have also documented the impacts of compassion on physiology (e.g., increased heart rate variability and brain activation (e.g., prefrontal cortex) Polyvagal theory, outlined by Porges (2007), details how the activation of the myelinated parasympathetic nervous system helps in the regulation of fight/flight (autonomic sympathetic nervous system), thus enabling calmness and soothing to be achieved when under threat through having proximity to others, receiving affiliative, caring, prosocial behaviour Specific strategies such as breathing practices, friendly voice tones, and facial and body expressions can activate the parasympathetic system, aiming to calm and soothe the individual, which improves heart rate variability.

Moreover, when the sympathetic system is activated under threat, this inhibits the ability for higher-order cognitive capacities such as mentalizing to occur (e.g., theory of mind), whereas activating the parasympathetic system helps provide a feeling of safeness, which permits activation of the prefrontal cortex and enables mentalization

Thus, compassion-based interventions focus on activating affiliative processing systems (e.g., parasympathetic system) to promote better health. In so doing, compassion-based interventions can be viewed as a transdiagnostic process. In light of these significant benefits associated with compassion, psychotherapies and compassion-based interventions have now been developed that specifically aim to cultivate compassion.[24,25]

The work of Kristen Neff, who interpreted Buddhist teachings to define self-compassion as having three components: (1) being mindful, rather than overidentifying with problems; (2) connecting with others, rather than isolating oneself; and (3) adopting an attitude of self-kindness, rather than being judgmental (Neff, 2003), the concept of self-compassion has gained more attention. It is not unexpected that there

are various therapeutic approaches and interventions that have been created to assist in cultivating compassion for oneself and others given the numerous definitions of compassion.[26]

There are six interventions with empirical backing that emphasise the development of compassion:

Compassion-focused therapy (CFT; Gilbert, 2014)[27], Mindful Self-Compassion (Pace et al., 2009), Cognitive Based Compassion Training (Pace et al.,2009) [28], and Cultivating Emotional Balance (Kemeny et al., 2012) [29], Compassion and Loving-Kindness Meditations (e.g., Hoffmann, Grossman, & Hinton, 2011).[30]

As of now, all six intervention methods have undergone the 'gold standard' assessments of randomised controlled trials (RCTs); Nevertheless, only CFT and Loving-Kindness Meditation have been studied (Hoffmann et al., 2011; Leaviss & Uttley, 2015) conducted a systematic review.[25]

This study aims to implement the integrative ACT and compassion-based intervention, the Living with Intention, Fullness, and Engagement with Inflammatory Bowel Disease (LIFEwithIBD) intervention.[31]

AIMS AND OBJECTIVES

To study pre and post-effects of ACT along with compassion-based intervention on depression and anxiety in patients with Inflammatory bowel disease.

To study pre and post-effects of ACT along with compassion-based intervention on perceived stress in patients with Inflammatory bowel disease.

To study pre and post-effects of ACT along with compassion-based intervention on psychological flexibility in patients with Inflammatory bowel disease.

To study the effect of ACT along with compassion-based intervention on depression and anxiety in the control and experimental group.

To study the effect of ACT along with compassion-based intervention on perceived stress in the control and experimental group.

To study the effect of ACT along with compassion-based intervention on psychological flexibility in the control and experimental group.

REVIEW OF LITERATURE

Recently, the gut-brain axis and the microbiome have taken on a significant role in the explanation of a variety of human behaviours and emotions (Miller, 2018).[32] The brain and gut have a unique and well-established bidirectional relationship. The gut-brain axis (GBA) connects the central nervous system (CNS) and the enteric nervous system (ENS) of the organism in a bidirectional manner. It involves both direct and indirect connections between the brain's cognitive and affective centres and peripheral gut functions (Carabotti et al.,2015).[33] Scientists have discovered that a human being is a superorganism harbouring billions of bacteria, following advances in bioinformatics and gut microbiota research in the twenty-first century. The host's cognition and behaviour are influenced by the gut flora. Mental diseases are thought to be linked to aberrant gut flora. The gut microbiome is closely associated with depression. The gut microbiome is also very important in the development of anxiety disorders such as obsessive-compulsive disorder, post-traumatic stress disorder, and panic attacks (Liang et al., (2018).[34] In IBD, the gut microbiota plays a critical role in the development of intestinal inflammation. Hence, keeping the brain-gut theory in mind, the psychological elements of IBD must be addressed for optimal management. The interplay between the mind-body and mind-gut connections, along with the implementation of behavioural interventions, have the potential to impact the experience of individuals with inflammatory bowel disease.[35]

DEPRESSION AND ANXIETY

A long-term medical condition is a risk factor for depression, and individuals with chronic conditions have greater rates of depression and anxiety than the general population. Evidence suggests that depression is linked to a lower quality of life in people with inflammatory bowel disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC) and is associated with higher rates of anxiety and depression than the general population. According to

studies done on individuals with IBD and chronic disease, having an anxiety or depression disorder is linked to less effective treatment adherence. Additionally, depressive disorders are linked to worse functioning, increased morbidity, and mortality among those with long-term medical conditions. It is crucial to identify individuals who are more likely to experience anxiety and depression so that they can receive the proper care and support. Treating mental disorders may enhance long-term outcomes (Byrne et al., 2017)[36], (Graff et al., 2009)[37], (Bisgaard et al., 2022).[38]

Emotional disorders (such as depression and anxiety disorders) are a group of chronic and frequently repeated psychiatric disorders that cause severe impairment in quality of life, productivity, and interpersonal functioning (Neuendorf et al., 2016).[11] Anxiety and depression have been reported to be common in IBD patients, and these symptoms are exacerbated during the disease's active phase (Yanartas et al., 2016; Yuan et al., 2021).[39,40] There are reciprocal influencing processes, in which the disease experience is stressful enough to induce or exacerbate the psychiatric disorder, and anxiety or depression may be sufficient to cause or exacerbate the health condition. In addition, corticosteroid medication is likely to cause mood problems or other psychiatric symptoms (Graff et al., 2009).[37] Anxiety and depression risk variables were found to be strongly linked to active disease in a large sample of IBD patients. The use of methods such as avoidance coping and teaching patients problem-solving or emotion-oriented skills could have an impact on the development of IBD (Triantafillidis et al., 2013)[41], (Knowles and Mikocka-Walus, 2014).[42]

Mikocka-Walus et al. (2007) discussed the relationship between inflammatory bowel disease (IBD) and the particular psychological comorbidities of depression and anxiety. The findings enumerated the relative rate of these psychological disorders' co-occurrence with IBD; the co-occurrence of these psychological disorders with a specific phase of IBD and a particular type of IBD. Additionally, the rate of these psychological comorbidities in both healthy subjects and other

disease conditions was discussed; and the timing of psychological comorbidity's onset with respect to the onset of IBD. Conclusively, the findings unmistakably demonstrate that IBD and anxiety/depression regularly interact.[43]

PERCEIVED STRESS

Psychological stress has long been anecdotally reported to enhance disease activity in IBD. In individuals with quiescent inflammatory bowel disease (IBD), unfavourable life events, chronic stress, and depression increase the risk of relapse. Studies of experimental stress in colitis-prone animals are progressively corroborating this evidence. The processes by which the neural system can influence immune function at both the systemic and gut mucosal levels are increasingly coming into focus with the developing concept of psychoneuroimmunology. According to recent research, the hypothalamic-pituitary-adrenal (HPA) axis, bacterial-mucosal interactions, mucosal mast cells, and mediators like corticotrophin-releasing factor (CRF) may all play a role in how stress-induced changes in gut inflammation are mediated (Mawdsley and Rampton, 2005).[44]

Both objective and subjective elements of ulcerative colitis activity are linked to life stress. The connection of perceived stress with rectal mucosal abnormalities in asymptomatic patients is very suggestive of a real link between psychological factors and ulcerative colitis activity. Both doctors and patients have long acknowledged psychological stress as a factor in IBD disease activity increasing (Levenstein et al., 1994).[45] Despite this growing understanding of stress's pro-inflammatory effects on IBD, only a few small studies have looked at stress reduction as a treatment option.

Although there has been progress in our knowledge of the physiological reactions to acute stress, it is still not apparent which type of stress—acute, chronic, or recurrent—could have the most influence on a chronic inflammatory disease. In the case of IBD, the condition

itself causes stress for the patient, further obscuring the situation (Bernstein et al., 2006).[46] Because IBD is a chronic disease, the disease burden is significant. Symptoms of sickness (fatigue, diarrhoea, pain) are widespread, as are greater mortality rates and occupational incapacity. Even though IBD patients are more likely to experience sadness and anxiety, the majority of these people do not receive psychotherapy. Patients with IBD who suffer from anxiety and depression have a lower quality of life, and their illness progresses more slowly. These symptoms, together with illness symptoms, result in decreased self-care and psychosocial functioning (Neuendorf et al., 2016).[11] These findings imply that patients should test for and treat these illnesses, resulting in better patient outcomes. Due to the psychosocial constraints associated with IBD, patients with the disease report a greater need for psychological therapies (Miehsler et al., 2008).[47]

Hence, stress and other psychological factors affect the prognosis, treatment effectiveness, and functional level of inflammatory bowel disease (IBD). Conventional IBD treatment must include supplementary stress-reduction strategies The advantages of mindfulness-based therapies in persons with IBD have been reported in recent pilot trials. The difficulties IBD patients frequently have adhering to set schedules because of IBD symptoms like pain, exhaustion, and incontinence may be a contributing factor in recruitment issues.

By providing participants with access to mindfulness training online enables people to interact with the intervention materials in a relaxed setting with flexible scheduling. Online mindfulness programmes have become increasingly popular in recent years because of their increased accessibility, flexibility, and affordability for the user; yet, they have a high dropout rate. The effectiveness of mindfulness training and its rate of adherence were examined in a study based on two levels of support: self-guided and supported. (Forbes and Johnson, 2021).[48], (Knowles and Mikocka-Walus, 2014).[42]

There is mounting evidence that stress alters the intestinal mucosa's permeability and cytokine release, adversely affecting the gut, microbiota, and brain axis and affecting IBD recurrence risk and disease severity. Given its recurrent nature, therapy approaches focus particularly on obtaining and sustaining illness remission. These methods concentrate on avoiding long-term problems and chronic intestinal injury (Oligschlaeger et al., 2019).[49]

COMPASSION

Self-compassion encourages the use of adaptive coping methods. Sirois et al. (2015) found that maladaptive coping styles (behavioural disengagement and self-blame) had negative indirect effects whereas the opposite was true for adaptive coping styles (active, positive reframing, and acceptance). Implying improved coping outcomes in the context of chronic illness are connected with the relative balance of adaptive and maladaptive coping techniques employed by self-compassionate people.[50]

Baxter (2023) defined self-compassion as being compassionate to oneself amid hardship and failure is self-compassion. It consists of three elements: mindfulness (observing negative events in a balanced way), shared humanity (viewing pain as a normal aspect of being human rather than alienating), and self-kindness (being kind to oneself rather than self-critical). One element thought to enhance health in populations with chronic illnesses is self-compassion.[51]

The effectiveness of compassion cultivation therapies in reducing psychological distress and psychopathological symptoms, as well as enhancing quality of life and well-being, is growing. Self-compassion (i.e., sensitivity to personal pain and a desire to alleviate and prevent it in a self-kind and courageous manner) appears to be particularly effective in combating shame and self-criticism. Self-compassion and self-criticism are controlled by separate brain systems. It's thought to be anchored in a soothing-affiliative affect regulation system that

combats threat-focused emotional and cognitive patterns including despair, anxiety, shame, and self-criticism.

Self-compassion was found to be a protective factor against stress, depressive symptoms, and anxiety in a recent longitudinal study of persons with IBD. During the last decade, including self-compassion components into ACT and mindfulness-based therapies has become a prominent study subject. These techniques are thought to be complementary and compatible. Their combination appears to offer additional benefits and to be practicable and effective in increasing quality of life, experience avoidance, shame, and self-criticism (Trindade et al., 2021)[31], (Knowles and Mikocka-Walus, 2014).[42]

Trindade et al., (2018) investigated how chronic patients' psychological well-being and social relationships are impacted by illness-related shame. They sought to investigate the functions of experience avoidance and fear of receiving compassion from others as potential mediators of this relationship. Although several research studies have shown the detrimental effects of guilt associated with chronic illness on psychological functioning, the processes that may underlie this connection are still not fully understood. Results revealed that fear of other people's compassion and experiential avoidance adequately explained the effects of illness-related shame on both psychological health and the quality of social connections. The primary mediator of the link between illness-related shame and the quality of social relationships was a person's fear of getting sympathy from others. Experiential avoidance served as the primary mediator of the relationship between psychological health and chronic illnesses connected to shame.

Research has illuminated potential psychological pathways relating feelings of shame brought on by having a chronic illness to poor social functioning and mental health. The effect of shame on psychological and social functioning in chronic patients appears to be mediated by two opposing strategies: on the one hand, denying sentiments of

sympathy and concern from others, and, on the other hand, avoiding challenging internal experiences and situations that can trigger them [52] (Knowles and Mikocka-Walus, 2014).[42]

Hence, self-compassion entails approaching tough situations with mindfulness and acceptance, realising that one is not suffering alone, and being patient and understanding with oneself. Mental health and self-compassion are strongly correlated, and research suggests that developing self-compassion through interventions has the potential to significantly improve mental health. Among people with chronic medical conditions, self-compassion is also linked to improved physical and mental health outcomes (Finlay-Jones et al., 2020).[53]

Ferrari et al. (2019) studied the effect of compassion-based interventions. When compared to controls, self-compassion therapies significantly improved different psychosocial outcomes. Notably, measures of eating behaviour, rumination, self-compassion, stress, sadness, mindfulness, self-criticism and anxiety showed significant improvement.[54] Similarly, Kariyawasam et al. (2023) found that practising compassion increases well-being and reduces depression, anxiety, and psychological distress among clinical and non-clinical populations.[55]

PSYCHOLOGICAL FLEXIBILITY

Research has highlighted the link between psychological flexibility, internalised stigma, and patient outcomes in an adult IBD population. Internalised stigma, lower committed action, poorer health-related quality of life, lower IBD self-efficacy, higher levels of self-concealment, higher levels of fatigue, and beliefs about the experience and expression of negative emotions as being unacceptable were all found in people with higher psychological inflexibility (Reynolds, 2021).

Internalized stigma and a variety of patient outcomes were revealed to be partially mediated by psychological inflexibility (psychological distress, IBD health-related quality of life, IBD self-efficacy, and self-concealment). The association between internalised stigma and fatigue

was completely mediated by psychological inflexibility. Psychological inflexibility was also discovered to modulate the link between internalised and perceived stigma. The findings imply that psychological inflexibility plays a significant role in the quality of life of people who have internalised stigma related to their IBD and that it may even moderate the link between internalised stigma and patient outcomes. These findings point to possible therapeutic targets for psychological interventions aimed at improving the quality of life in people with IBD. Individuals with internalised stigma connected to their IBD may benefit from Acceptance and Commitment Therapy, which aims to increase psychological flexibility (Reynolds, 2021).[56]

Between December 2014 and January 2016, a variety of psychometric tests, including the Short-Form IBD Questionnaire (SIBDQ), the ADAP test evaluating demand for psychotherapy, and the Fear-of-Progression Questionnaire Short Form, were made available online. The study discussed the need for psychotherapy as an additional model of treatment for IBD varies on prior psychotherapy experiences, worry about disease progression, social traits, and quality of life (Klag et al., 2017).[57]

Trindade et al., (2018) discussed a comprehensive model regarding the role of chronic illness-related cognitive fusion in the relationship of body image dissatisfaction and chronic illness-related shame with depression symptoms. Further, it demonstrated that body image dissatisfaction's impact on depressed mood is significantly explained by the mechanisms of chronic illness-related shame and chronic illness-related cognitive fusion. It was also found that chronic illness-related cognitive fusion additionally mediated the impact of chronic illness-related shame on depression. Therefore, the implementation of acceptance and defusion-based psychotherapeutic interventions to improve mental health in patients with chronic illnesses seems to be of great importance.

In order to better understand how body image dissatisfaction, chronic illness-associated shame, and depressive symptoms are related, a complete model of the role of chronic illness-related cognitive fusion has been explored. It also showed that the mechanisms of chronic illness-related guilt and chronic illness-related cognitive fusion largely explain how body image dissatisfaction affects depressive mood. The influence of chronic illness-associated shame on depression was further mediated by cognitive fusion connected to the condition. Further, it was recommended that in order to enhance mental health, acceptance- and defusion-based psychotherapy interventions should be used.[58]

ACCEPTANCE AND COMMITMENT THERAPY

Bennebroek Evertsz' et al. (2012) found that only 18% of IBD patients with symptoms of anxiety and depression obtain mental health treatment. An active condition is linked to higher levels of anxiety and depression. It was further proposed that the medical treatment for IBD should include screening as a crucial component. In order to treat depression and anxiety in IBD patients, psychological therapies are required.[59]

Ruiz et al., (2018) suggested Acceptance and Commitment Therapy has been proven effective in dealing with emotional disorders like depression and anxiety. RNT is an experience avoidance tactic that involves repetitive negative thinking. RNT is often the first reaction to traumatic private experiences. RNT-disrupting ACT regimens can be extremely effective. Ten people with emotional problems were given the RNT-focused ACT treatment. The intervention's effect sizes were substantial.[60] Another similar study involved a randomised controlled trial to compare the effectiveness of acceptance and commitment therapy (ACT) to a waiting control in the treatment of depression and generalised anxiety disorder. Simple randomization was utilised to assign 48 participants with a major diagnosis of depression and/or GAD to either a 2-session Repetitive Negative Thinking-focused ACT

intervention or the waiting list control. The intervention was effective in lowering emotional symptoms during the 1-month follow-up. At the 3-month follow-up, the intervention effects were still present. In the treatment of depression and GAD, a very brief RNT-focused ACT intervention was highly successful (Ruiz et al.,2020).[61]

Mohabbat-Bahar et al., (2015) found that chronic and life-threatening illnesses, such as breast cancer, diabetes, and irritable bowel syndrome, have been shown to benefit from acceptance and commitment to therapy. The findings revealed that group training based on acceptance and commitment therapy reduces anxiety and depression effectively. As a result, psychological therapy can be utilised to help women with breast cancer cope with their emotions.[62] Focusing on depression and mental wellness in diabetic patients, a study randomly selected an experimental group that received eight 120-minute ACT training sessions whereas the control group did not get any training. The results showed that ACT considerably reduced symptoms of depression when compared to the control group which suggests that diabetes patients could benefit from ACT as a treatment option for depression (Maryam et al., 2013).[63]

Irritable Bowel Syndrome (IBS) is a widespread chronic illness that is thought to be caused by a combination of physiological, psychological, and social factors. IBS has been linked to a significant psychosocial impact on sufferers' lives. Acceptance and Commitment Therapy (ACT) is a new conceptualization and treatment approach that claims that most chronic illness suffering is caused by a lack of psychological flexibility or acceptance of unpleasant physiological sensations, ideas, or emotions. Increased psychological flexibility is a crucial change in ACT therapy that leads to better outcomes. Hence ACT model is a useful paradigm for understanding the relationships between the various components associated with this condition and its consequences (Ferreira, 2011) [64] Ferreira et al., (2018) and Mirsharifa et al., (2019) utilised brief ACT procedure and found significant

improvement in IBS outcomes as well as maintenance of therapeutic effects after six months.[65,66]

Acceptance and Commitment Therapy (ACT) can help IBD patients deal with their specific difficulties. An 8-week Acceptance and Commitment Therapy course significantly improved stress and other indices of psychological health, including depression and anxiety, in a randomised controlled study of individuals with IBD (Wynne et al., 2019).[67] Korzenik (2019) emphasised that patients with IBD who had a certain level of psychological dysfunction based on a perceived stress score or a low quality of life score were enrolled in another trial. The patients received ACT in addition to usual care in eight weekly 90-minute group sessions, while the control group received only conventional care. Stress and depression scores dropped with an improvement in overall well-being among patients assigned to the ACT program, but the anxiety did not show a significant difference.[68]

Carvalho et al., (2022) conducted a pilot randomised controlled for chronic illnesses to study online acceptance and commitment treatment versus compassion-focused therapy. The findings indicated that low-intensity (four sessions) online ACT and CFT are cost-effective methods for improving mental health in people with Chronic Illnesses, including IBD.[69] In persons with IBD, the risk of mental health issues is linked to increased healthcare costs. Providing comprehensive psychological care to those at risk of mental illness can save money, especially by reducing visits to emergency rooms (Lores et al.,2021).[70] A four-hour telemedicine ACT intervention that targeted stress and increased psychological flexibility given via a video conferencing platform was found to be effective. This comprised a two-session ACT telehealth intervention, which included a workbook and phone counselling. Approximately half of the participants reported less stress, more engagement in worthwhile activities, and improved functioning. Although more studies and replications are needed, brief ACT therapies in this population may be helpful and cost-effective (Lavelle et al., 2022).[71]

Aversive inner and outside events are frequently linked to chronic diseases. The increasing number of research backs up ACT's effectiveness. In the setting of chronic somatic disorders, there is evidence that ACT can promote psychological flexibility and potentially lead to better self-management (Kuba and Weißflog, 2017).[72] McCombie et al (2013) found that psychotherapy showed promise in lowering pain, exhaustion, relapse rate and hospitalisation, as well as improving medication adherence.[73]

Knowles et al. (2013) emphasised that adults with inflammatory bowel disease (IBD) are more likely to experience anxiety, depression, and a lower quality of life (QoL) than healthy individuals without chronic physical illnesses or other patient groups. Therefore, it is desirable to develop and assess well-defined and theoretically sound psychotherapy therapies for adults with IBD. By assessing the effectiveness of particular strategies (such as stress management, psychodynamic therapy, cognitive behavioural therapy, or hypnosis) in improving psychological symptoms and quality of life. Interventions that focused primarily on stress management only showed minor improvements in IBD symptoms, mental health symptoms, or QoL. Studies on cognitive behavioural therapy have consistently demonstrated advantages for symptoms of anxiety and depression, but mixed results for IBD symptoms. Interventions based on psychodynamic theory lessened anxiety and depression symptoms, but not the severity of IBD. Despite employing various techniques, both hypnosis trials appeared to have a more favourable effect on disease severity than on mental health symptoms or quality of life. The findings imply that, despite the requirement for additional carefully planned and assessed interventions, psychological input can significantly improve the multidisciplinary treatment of individuals with IBD.[74]

Patients with inflammatory bowel disease (IBD) report an immense need for psychotherapy, psychological care is not a regular part of medical care. A variety of psychotherapeutic treatment approaches, including cognitive-behavioural therapy, psychodynamic therapy,

acceptance and commitment therapy, stress-reduction techniques, mindfulness, hypnosis, or solution-focused therapy have been studied. In trials focused on individuals with a chronic illness, psychotherapy was found to be beneficial. The studies that used cognitive-behavioural therapy revealed the most consistent good outcomes. Psychotherapeutic management can enhance people with IBD's quality of life. Additionally, it is necessary to assess if early psychological intervention following diagnosis would lead to better-coping mechanisms and QoL throughout life (Paulides et al., 2021).[75]

Hence, the bidirectional association between psychological illnesses and IBD has been shown in numerous investigations. A variety of psychological interventions, such as psychodynamic therapies, cognitive-behavioural methods, and third-wave therapies, can be utilised with the goal of modifying the course of their disease, enhancing their quality of life, and easing their anxiety and depressive symptoms. Third-wave therapies, such as Mindfulness-based intervention and Acceptance Commitment Therapy, are advanced psychotherapeutic techniques that have been consistently effective in treating IBD patients based on scientific data. The third-wave therapies may be a therapeutic option for the management of psychological stress, anxiety, and depression in these patients. (Ferrarese et al.).[76]

RESEARCH GAP

The current study aims to study the effect of Acceptance and commitment therapy along with compassion-based intervention on Depression, Anxiety, Perceived Stress and Psychological Flexibility in patients with Inflammatory Bowel Disease. As per the literature reviewed, there is significant data on the effectiveness of Acceptance and commitment therapy as well as Compassion-based intervention as a treatment approach for multiple psychiatric disorders. However, there is a dearth of data when it comes to their applicability to patients with Inflammatory Bowel Disease and the Indian population. The prevalence of IBD in India has been discussed which highlights the

need to inculcate comprehensive treatment for the patients. The inclusion of ACT and Compassion-based interventions in a standard treatment protocol for IBD patients in India hinges on their proven effectiveness.

MATERIALS AND METHODS

SOURCE OF DATA

The study was conducted on patients diagnosed with Inflammatory bowel disease admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana.

SAMPLE COLLECTION

The study included 100 patients diagnosed with Inflammatory bowel disease admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana between the ages of 18 to 65 years.

RESEARCH DESIGN- Pre-test and post-test design was used for the current study. There were two groups i.e., experimental and control group. The experimental group and the control group underwent pre and post-intervention assessments. The experimental group received a treatment intervention of Acceptance and commitment therapy along with compassion-based intervention.

SAMPLING TYPE- Purposive sampling based on inclusion criteria was used to form a sample for data collection. Two groups of 50 patients each were formed based on the diagnosis of inflammatory bowel disease.

INCLUSION CRITERIA

1. Patients having a diagnosis of Inflammatory bowel disease and are on medication for at least 30 days.
2. Patients of age group between 18 to 65 years of either gender.
3. Patients with formal education of at least 8 years.
4. Patients admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana.
5. Patients willing to give informed consent.

EXCLUSION CRITERIA

1. Patients not willing to give informed consent.
2. Patients diagnosed with psychotic disorders.
3. Patients undergoing psychopharmacological treatment.

METHODOLOGY

The study involved 100 patients, aged 18 to 65, who had been diagnosed with Inflammatory Bowel Disease and were currently receiving medical treatment. These patients were either admitted to the Gastroenterology ward or attending the Gastroenterology Outpatient Department at Dayanand Medical College and Hospital in Ludhiana.

To collect basic patient information, a Socio-Demographic Proforma was completed. All participants were informed about the study's goals and were assured that their participation was entirely voluntary. Their identities were kept confidential, and they were made aware of their right to ask questions at any point during the research. Additionally, they were informed of their entitlement to receive a summary of the study's findings upon request.

Before the initiation of Acceptance and Commitment Therapy (ACT) intervention, the patients were assessed for Depression, Anxiety, Perceived Stress, and Psychological Flexibility by the examiner. The control group, consisting of 50 patients, underwent both pre-test and post-test assessments only. In contrast, the experimental group, also comprising 50 patients, underwent pre-test and post-test assessments in conjunction with sessions of Acceptance and Commitment Therapy and compassion-based interventions. These psychotherapeutic sessions were conducted on a weekly basis, with each session lasting approximately 30-45 minutes and taking place in an individual setting. Following the intervention, patients were reassessed for Depression, Anxiety, Perceived Stress, and Psychological Flexibility.

TOOLS:

1. Socio-Demographic Proforma
2. Hospital Depression and Anxiety Scale

3. Perceived Stress Scale

4. Psychological Flexibility Scale

Socio-Demographic Proforma: It includes the name of the patient, age, gender, MRD number, educational qualification, occupation, background, contact number, family type, education and occupation of the head of the family, family income, socioeconomic status, diagnosis, time since diagnosis and treatment. Scores of the Hospital Depression and Anxiety Scale, Perceived Stress Scale and Psychological Flexibility Scale are included. Socio-Economic status was calculated using the updated modified Kuppuswamy Socio-Economic status scale.[77]

The Hospital Anxiety and Depression Scale (HADS) [78] (Zigmond and Snaith, 1983)

The measure of anxiety and depression in a general medical population of patients. The questionnaire comprises seven questions for anxiety and seven questions for depression and takes 2–to 5min to complete. It is useful for initial diagnosis and to track the progression (or resolution) of psychological symptoms. Most factor analyses demonstrated a two-factor solution in good accordance with the HADS subscales for Anxiety (HADS-A) and Depression (HADS-D), respectively. The correlations between the two subscales varied.40 to.74 (mean.56). Cronbach's alpha for HADS-A varied from.68 to.93 (mean.83) and HADS-D from.67 to 90 (mean.82). In most studies, an optimal balance between sensitivity and specificity was achieved on both HADS-A and HADS-D. The sensitivity and specificity for both HADS-A and HADS-D of approximately 0.80 were very similar to the sensitivity and specificity achieved by the General Health Questionnaire (GHQ). Correlations between HADS and other commonly used questionnaires were in the range.49 to.83. HADS was found to perform well in assessing the symptom severity and presence of anxiety disorders and depression in both somatic, psychiatric, and primary care patients and the general population.

Perceived Stress Scale [79] (Cohen, 1988)

This is a 10-item scale assessing perceived stressfulness of different situations encountered (example item: “In the last month, how often have you felt that you were on top of things?”). Items are rated on a scale from 0 = Never to 4 = Very often, with the scale providing an overall stress score (range: 0–40) and indicating one of three levels of stress (low: 0–13, moderate: 14–26, high: 27–40). Good psychometric properties including factorial validity, hypothesis validity, and internal consistency (Cronbach’s α > .70) have been reported in English and French [80] (Lee, 2012), Turkish [81] (Örücü & Demir, 2009), and Greek[82] (Michaelides et al., 2016).

Psy-Flex scale [83] (Gloster, Block, et al., 2020)

The Psy-Flex assesses all six ACT skills in an easy-to-administer process measure. Items are measured in a time- and context-sensitive manner. Psy-Flex is a short-state measure of psychological flexibility exhibited during the past week. It includes 9 items loading on a single factor. Example items include: “I can look at hindering thoughts from a distance without having them control me” and “I face myself/others with tolerance, benevolence, and compassion.” Items are rated on a scale from 1 = very rarely to 5 = very often, with higher scores indicating greater psychological flexibility (range: 9 to 45). Psy-Flex has been evaluated in English and Greek across clinical and non-clinical samples with good psychometric properties (convergent validity, divergent validity, and reliability: Raykov estimation range .78–.97.

INTERVENTION:

Acceptance and commitment therapy (ACT, typically pronounced as the word "act") is a form of psychotherapy, as well as a branch of clinical behaviour analysis. It is an empirically-based psychological intervention that uses acceptance and mindfulness strategies along with commitment and behaviour-change strategies to increase

psychological flexibility. This approach was originally termed comprehensive distancing.

Steven C. Hayes developed the treatment starting around 1982 to create an approach that integrates both covert conditioning and behaviour therapy. Acceptance and Commitment Therapy (ACT) can be defined as “a psychological intervention based on modern behavioural psychology, including Relational Frame Theory, that applies mindfulness and acceptance processes, and commitment and behaviour change processes, to the creation of psychological flexibility”.

Experiential avoidance is defined as the “phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioural predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them” (Hayes et al., 1996). According to the Association for Contextual Behavioural Science (ACBS) ACT is: “a unique empirically based psychological intervention that uses acceptance and mindfulness strategies, together with commitment and behaviour change strategies, to increase psychological flexibility.”

According to Harris, the six core processes of ACT guide patients through therapy and provide a framework for developing psychological flexibility. These six core processes of ACT include acceptance, cognitive defusion, being present, self as context, values, and committed action. The focus of ACT is not the elimination of difficult feelings rather, it is to be present with what life brings and to "move toward valued behaviour". Acceptance and commitment therapy invites people to open up to unpleasant feelings, learn not to overreact to them, and not avoid situations where they are invoked. By strengthening the psychological flexibility of individuals with IBD, ACT helps them to learn to accept and handle discomfort and pain. Its therapeutic effect aims to be a positive spiral where a greater understanding of one's emotions leads to a better understanding of the truth. In the ACT, "truth" is measured through the concept of

"workability", or what works to take another step toward what matters (e.g., values, meaning).

The compassion-based intervention, created by Paul Gilbert in the early twenty-first century, is thought to be anchored in a soothing-affiliative affect regulation system that combats threat-focused emotional and cognitive patterns including despair, anxiety, shame, and self-criticism.

This study aims to implement the integrative ACT and compassion-based intervention, the Living with Intention, Fullness, and Engagement with Inflammatory Bowel Disease (LIFEwithIBD) intervention.[31]

INTERVENTION PROCEDURE

In the current study, ACT and compassion-based intervention were utilised. A few modifications and simplifications were made accordingly to suit the Indian population and the requirements of the study and the researcher. Core concepts discussed during each session were rediscussed and strengthened throughout subsequent ACT along with compassion-based intervention.

Out of the 50 patients in the experimental group, 21 patients underwent 9 sessions of the intervention. 9 patients underwent 5 sessions, 8 patients underwent 4 sessions and 12 patients underwent 2 sessions. Post-intervention assessments were done for all the patients.

SESSION PLAN

Pre-test phase- introductory session:

Participants were explained the aims and objectives of the study.

Informed consent was taken.

Participants were informed regarding the voluntary nature of the study and the right to withdraw from the study at any given point in time. They were told about the future implications of the study and their right to ask for the results of the study if they wished to. Participants were

also informed regarding the active nature of the intervention used in the study.

The researcher focused on building rapport with the participants. Socio-demographic proforma was filled. Detailed case history involving symptoms of Inflammatory bowel disease, diagnosis, current treatment along with symptoms of depression, anxiety and perceived stress were taken.

They were further evaluated on Hospital Anxiety and Depression Scale, Perceived Stress Scale and Psychological Flexibility.

SESSION 1

Introduction to the programme and promotion of creative hopelessness.

Presentation of the general aims and structure of the intervention.

Identification of areas of suffering and promotion of creative hopelessness.

Mindfulness was introduced as an alternative strategy to deal with difficulties.

The science backing mindfulness was explained

Eating a Raisin: The Raisin meditation is the first sample of the central tenet of the mindfulness programme: that is, relearning how to bring awareness to everyday activities so that one can see life as it is, unfolding moment by moment. It requires a few raisins (or other dried fruit or small nuts). And a piece of paper and a pen to record their reactions afterwards. The task was to eat the fruit or nuts in a mindful way. The patients were instructed with the following steps:

<u>1. Holding</u>

Take one of the raisins (or your choice of dried fruit or nuts) and hold it in the palm of your hand or between your fingers and thumb. Focusing on it, approach it as if you have never seen anything like it before. Can you feel the weight of it in your hand? Is it casting a shadow on your palm?

2. Seeing

Take the time really to see the raisin. Imagine you have never seen one before. Look at it with great care and full attention. Let your eyes explore every part of it. Examine the highlights where the light shines; the darker hollows, the folds and ridges.

3. Touching

Turn the raisin over between your fingers, exploring its texture. How does it feel between the forefinger and thumb of the other hand?

4. Smelling

Now, holding it beneath your nose, see what you notice with each in-breath. Does it have a scent? Let it fill your awareness. And if there is no scent, or very little, notice this as well.

5. Placing

Slowly take the object to your mouth and notice how your hand and arm know exactly where to put it. And then gently place it in your mouth, noticing what the tongue does to 'receive' it. Without chewing, simply explore the sensations of having it on your tongue. Gradually begin to explore the object with your tongue, continuing for thirty seconds or more if you choose.

6. Chewing

When you're ready, consciously take a bite into the raisin and notice the effects on the object, and in your mouth. Notice any tastes that it releases. Feel the texture as your teeth bite into it. Continue slowly chewing it, but do not swallow it just yet. Notice what is happening in the mouth.

7. Swallowing

See if you can detect the first intention to swallow as it arises in your mind, experiencing it with full awareness before you actually swallow. Notice what the tongue does to prepare it for swallowing. See if you can follow the sensations of swallowing the raisin. If you can, consciously sense it as it moves down into your stomach. And if you don't swallow it all in one go, consciously notice a second or even a

third swallow, until it has all gone. Notice what the tongue does after you have swallowed.

8. After-effects

Finally, spend a few moments registering the aftermath of this eating. Is there an aftertaste? What does the absence of the raisin feel like? Is there an automatic tendency to look for another? Now take a moment to write down anything that you noticed when you were doing the practice.

Home assignment:

Practice mindfulness meditation.

SESSION 2

Education about inflammatory bowel disease which includes exploring myths and common fears and worries was discussed.

Introduction to mindful breathing exercise.

The three-minute breathing space: The Breathing Space meditation concentrates the core elements of the Mindfulness programme into three steps of roughly one minute each.

Step 1: becoming aware

Deliberately adopt an erect and dignified posture, whether sitting or standing. If possible, close your eyes. Then, bring your awareness to your inner experience and acknowledge it, asking: what is my experience right now?

• What thoughts are going through the mind? As best you can, acknowledge thoughts as mental events.

• What feelings are here? Turn towards any sense of discomfort or unpleasant feelings, acknowledging them without trying to make them different from how you find them.

• What body sensations are here right now? Perhaps quickly scan the body to pick up any sensations of tightness or bracing, acknowledging the sensations, but, once again, not trying to change them in any way.

Step 2: gathering and focusing attention

Now, redirecting the attention to a narrow ‘spotlight’ on the physical sensations of the breath, move in close to the physical sensations of the breath in the abdomen expanding as the breath comes in and falling back as the breath goes out. Follow the breath all the way in and all the way out. Use each breath as an opportunity to anchor yourself into the present. And if the mind wanders, gently escort the attention back to the breath.

Step 3: expanding attention

Now, expand the field of awareness around breathing so that it includes a sense of the body as a whole, your posture and facial expression, as if the whole body was breathing. If you become aware of any sensations of discomfort or tension, feel free to bring your focus of attention right to the intensity by imagining that the breath could move into and around the sensations. In this, you are helping to explore the sensations, befriending them, rather than trying to change them in any way. If they stop pulling for your attention, return to sitting, aware of the whole body, moment by moment.

Home assignment:

Mindful breathing exercise

SESSION 3

How the evolutionary past influences our mind was discussed and explained. The mind body connection was explained.

Physiological responses to emotions were discussed. Promotion of awareness of physical sensations.

Noticing 5 things exercise was done. What do you see around you? Notice colors, shapes, and objects. What sounds can you hear? Pay attention to any sounds in the background or nearby. What can you feel physically? Is there a chair beneath you, the texture of your clothing, or the temperature of the air? Are there any scents in the air? What can you smell? Can you taste anything or notice any lingering tastes in your mouth?

Describe in Detail: As you identify each of these five things, describe them to yourself silently or out loud. Go into as much detail as possible.

For example, if you notice a tree, describe its leaves, the color of its bark, the shape of its branches, etc.

Avoid Judgment: It's essential to observe and describe these things without judgment. Simply notice them and accept them as they are, without labeling them as "good" or "bad."

Continue Mindfully: Continue to be mindful of these sensations for a few minutes, or for as long as you feel comfortable. If your mind starts to wander, gently bring your focus back to the exercise.

The "Noticing 5 Things" exercise is a simple yet effective way to ground oneself in the present moment, reduce stress, and practice mindfulness. It can help individuals develop a greater awareness of their surroundings and sensory experiences,

Body scan meditation:

1. Lie down on your back and make yourself comfortable in a place where you will feel warm and undisturbed.

2. Take a few moments to bring your awareness to the physical sensations in your body, especially to those of touch or pressure where your body makes contact with whatever you are lying on. On each out-breath, allow yourself to sink a little deeper into the surface.

3. Gently remind yourself that this is a time for ‘falling awake’ rather than falling asleep. It is a time to be fully aware of your experience as it is, not as you think it should be. You should not try to change the way you are feeling, not even to be more relaxed or calmer. The intention of this practice is to bring awareness to any and all sensations as you focus your attention systematically on each part of your body. Sometimes, you may feel no sensations at all. If that is the case, then simply acknowledge this. There’s no need to try and imagine sensations where none can be noticed.

4. Now bring your awareness to the sensations in your abdomen, becoming aware of the changing patterns in the abdominal wall as the breath moves in and out of your body. Take a few minutes to feel the sensations as you breathe in and out, as your abdomen rises and falls.

5. Having connected with the sensations in your abdomen, gather your attention as if it were a spotlight, and bring it down the body into your legs, into both feet, and all the way out to your toes. Focus on each of the toes, bringing a gentle, interested attention to them. Investigate the qualities of the sensations. You might notice a feeling of contact between the toes, or perhaps feel a tingling sensation, or one of warmth, or numbness, or absolutely no sensation at all. Whatever you experience is OK. There is no need to judge it. See if it's possible to allow the sensations to be just as they are.

6. On an in-breath, feel or imagine that the breath could enter the lungs and pass all the way down the body, through the legs and into the toes. On the out-breath, feel or imagine the breath flowing out of the toes, the feet, legs, torso and, finally, out of the nose. Continue focusing in this way for a few breaths. You might find it difficult to get the hang of this, so just practise as best you can, approaching it playfully.

7. When you are ready, on an out-breath, let go of the toes and bring your awareness to the sensations in the bottom of your feet. Bring a gentle, investigative awareness to their soles. Then move your awareness to the instep and then the heel of each foot. You might notice, for example, a slight sense of pressure where the heels make contact with the mat or bed. Experiment with breathing into any of the sensations that you discover, being aware of the breath in the background as you explore the sensations in the bottom of the feet.

8. Allow your awareness to expand into the rest of the feet, into the top of the feet, into the ankles, right into the bones and joints. On a deeper and more intentional in-breath, direct it down into both feet. On the out-breath, let go of the feet completely and shift your attention to the lower legs.

9. Continue scanning your whole body in the same way, lingering for a time over each part in turn. After your lower legs, move up to the knees and then the thighs. Now move your awareness to the pelvic area – your groin, genitals, buttocks and hips. Become conscious of your lower back, abdomen, upper back and, finally, your chest and shoulders. Gently bring your awareness to both hands. When you

focus on your hands you could first attend to the sensations in the tips of your fingers and thumbs, then the whole finger and thumbs, the palms of the hands and then their backs. Then gently move to your wrists, lower arms and elbows, upper arms, shoulders and armpits. Then move your awareness to your neck, your face (jaw, mouth, lips, nose, cheeks, ears, eyes and forehead) before, finally, holding your entire head in full awareness.

10. You should hold each region of your body for, perhaps, twenty to thirty seconds. There is no need to measure the time accurately or count the breaths – simply attend to each part of the body in turn for as long as seems natural.

11. When you become aware of any intense sensations, such as tension, in a particular part of your body, see how it is to 'breathe into' them to explore them further. Use the in-breath to gently bring awareness into the sensations. Then see how the sensations change – if at all – when you breathe out of them.

12. From time to time, the mind will inevitably wander away from the breath and body. This is entirely normal. When you notice it, gently acknowledge the fact, make a mental note of where your thoughts went off to, and gently return your awareness to the part of the body you intended to focus on.

13. After you have scanned the whole body in this way, spend a few minutes becoming aware of the body as a whole. Feel the sensations of wholeness. See if you can hold all of the fluxing sensations in spacious awareness, feeling the breath flowing freely in and out of the body.

Home assignment

Body Scan meditation.

SESSION 4

Values clarification is a process to explore and clarify personally meaningful things with clarification and definition of life values. Individual assessment of the alignment between behaviour and values importance was done.

80th birthday party exercise: This exercise is used for Values Exploration to get a sense of what the patients wants their lives to be about. It's a way of exploring what they would like to treat as important and how they want to be with themselves or with others. The patients are asked to close their eyes and they are guided through noticing different aspects of their experience.

The following instructions are given "I'll ask you some questions. You don't need to answer out loud. Just notice what comes up for you. There are no right or wrong answers in this exercise – it's all about noticing what comes up. Are you willing?

The exercise begins by closing our eyes. Take a moment to get centred by noticing the breath and noticing how the body feels.

Now, imagine moving forward through time. Imagine yourself aging and growing older as you move through life. Imagine now that you are turning 80 years old, and your friends, family, and co-workers have gathered to celebrate your 80th birthday.

Imagine what you will look like on your 80th birthday. And, I invite you to imagine not who you think would likely be there, but imagine who you would most want to be at your 80th birthday party – even if that means they would be very old. There could even be people you haven't met yet. Try to really picture who would be there. Now the time has come in the party where people are starting to give speeches. They are taking turns standing up and speaking about what you have meant to them. They are speaking about what you have stood for as a person, and the impact you have had. Again, I'm not asking you to imagine what they would likely say. I'm inviting you to imagine, if you were to be bold in this moment, what you would most want them to say. Deep down in your heart, imagine what you would most want others to say about what you've meant.

Imagine the first person standing up to speak. Imagine it's someone very close to you. Take a moment now and imagine what you would most want them to say about the impact you've had. Try to really hear them saying that.

Now, imagine the next person standing up to speak. This could be someone from a different part of your life – perhaps a co-worker or neighbour. And for them too, imagine what you would most want for them to say about what you have stood for in your life.

Now thank your mind for this experience, and gently bring your attention back to the present moment. Take a moment to get centered here, noticing your breath and how your body feels. And when you're ready, you can open your eyes.

There are lots of ways to debrief from this exercise. The direction you take will depend on what comes up for the participant. Here are some possibilities.

Questions to ask: What came up for you? Who did you imagine speaking? What did you most want them to say about you? What other thoughts/feelings did you notice?

Ideas to explore:

Values are described as a choice (in contrast to "shoulds"), Values as an on-going direction or agenda in life (in contrast to specific goals) and Values as a quality of action (in contrast to an emotion or object). To care about something is to be vulnerable to it (pain and values are connected) is explained.

Bulls eye exercise: Bull's Eye Instrument: This instrument has two parts. It is a measurement of 1) consistency between the client's behaviour with his or her valued directions and 2) a measure of persistency of valuing (choosing valued directions) even in the face of difficulty.

A) Consistency

This instrument in the form of a dartboard asked the patient to respond to three questions in part A and two questions in part B.

1) Define valued direction

The patient is asked to choose three areas of life that he or she would like to develop that he or she doesn't have today or that he or she isn't as active as he or she would like to be.

2) Placing the dart

The patient is asked to place the dart (place an X) on the dartboard that best represent his or her consistency between his or her behaviour in the past two weeks and the valued direction. The bull's eye represents perfect consistency and the consecutive four rings around bull's eye represent varying distance from this consistency. The five levels are: Bull's eye, very close, close to, in the vicinity, and far from. The dart or X can be placed anywhere on the board within these levels which best represents how his or her behaviour in the past two weeks coincides with the value life direction.

3) Measuring Consistency

Measurement is taken using a ruler and measuring the number of mm from the bull's eye to the X. Measure the distance in each of these three targets and create a consistency index by adding the three sums and divide by three.

B) Persistency of valuing

The second part of the Bull's eye instrument is a general measure of persistency. It aims at measuring the patient's persistency in "valuing" or behaving consistently in valued directions in the face of difficulties. In this dartboard, the bull's eye represents perfect persistency in behaving in valued directions despite any difficulties. The consecutive rings surrounding the bull's eye represent distance from being perfectly persistent. The patient is asked to rate his or her own "persistency" in valuing behaviour the past two weeks, in the face of difficulties. This part of the instrument may also measure "believability" of barriers and subsequent "emotional avoidance" of these barriers. In other words, the patient may wish to persist in a valued direction but believes that the barriers must first be resolved before he or she can pursue valued directions. The degree to which the patient believes the barrier to be a true barrier will show up in the degree to which he or she rates his or her persistency on this dartboard.

Passengers on the bus metaphor: patients are asked imagine that they are driving a bus, and the cranky passengers represent their

irrational and negative thoughts that side track the driver from his goal. Instead of listening and getting side tracked by these angry passengers (i.e., negative thoughts), the bus driver does not stop the bus or take the bus in the wrong direction. Rather, the driver keeps on driving towards a goal of living a more positive and healthier life, and commit themselves to stop getting side tracked and influenced by the behaviour of others.

Mindfulness of sounds and thoughts was practised.

Home assignment:

Mindfulness of sounds and thoughts

Getting in touch with an old friend

SESSION 5:

Committed action and self-care

Identification of objectives and obstacles to committed action

Self-care: why it's essential and ways to engage in them

Education on fatigue: strategies to cope with different types of fatigue physical and mental

The spoon theory: The patients are explained the impact of living with chronic illness, chronic pain, and disability on a daily basis. It highlights the differences between living with illness compared to living without illness. The spoon theory uses spoons as a metaphor for energy. One spoon represents the energy it takes to complete a task with a chronic health condition. The spoon theory helps people with chronic health conditions explain to others how much energy is used doing certain activities. For example, every person has a limited number of spoons in their personal supply of energy for the day. Different activities diminish the supply of spoons as the day progresses.

The three-minute breathing space was practised.

Home assignment

The three-minute breathing space

Listing of possible self-care actions

SESSION 6

Psychoeducation on shame and self-criticism was done. IBD as an invisible disease and IBD related stigma was addressed. Introduction to compassion and using it as a strategy to manage difficult feelings and general suffering: tackling self-criticism with self-kindness. Self-compassion and relaxation training was discussed.

Soothing rhythm breathing: Following instructions were given: Find a quiet place to sit. Take a moment to embody a grounded, confident and upright posture, with your feet on the floor at shoulders width, your spine upright and shoulders slightly back and chest open (10 secs). Bring your head in to an upright position, and gently bring a friendly expression to your face. When you feel ready, bring your attention to your breathing in a mindful way (10 secs).

Notice the sensations that are present as you breathe in and out, and when your attention becomes distracted, bring it back to focus on your breath in a gentle and kind way. Now, as you're gently holding your attention in the flow of your breath, see if you can find a soothing or calming breathing rhythm. Take some time to experiment with this – to explore what your breathing rhythm would be like if it had a soothing or calming quality to it. It may be that this rhythm is a slower and deeper rhythm that usual, but one that feels comfortable to your body. If you can, try to breathe in a smooth, even way (20 secs) If you notice your attention moving away from your breath, or that you become distracted in any way, gently bring your attention back to your breath and tune back in to the calming or soothing quality of your breathing rhythm (60 secs) As you continue, see if you can imagine a sense of 'slowing down' in your body as you breathe out (30 seconds) It can also be helpful to notice your body feeling a little heavier, as you breathe out, whilst your legs are support by the chair and feet grounded on the floor (10 secs). Continue practising this breathing rhythm for another five minutes or so, mindfully noticing when your awareness is distracted from this focus, and gently bringing your attention back to rest in the

flow of your soothing breathing rhythm. When you feel ready, open your eyes and bring yourself back in to the room."

Loving kindness meditation- Patients were asked to practice compassion. It is given to a person they love, an acquaintance, a person with whom they have minor issues and all people with IBD.

HOME ASSIGNMENT

Soothing rhythm breathing and loving kindness

SESSION 7

Acceptance and cognitive defusion was focused on. The power of thinking was explained with regards to cognitive defusion and promotion of acceptance and willingness through cognitive defusion.

Mindfulness practice (body, sounds and breath) was practised.

"I am having the thought that I am" exercise and Exercise inviting a difficulty was introduced.

HOME ASSIGNMENT

Trying on somewhat uncomfortable activities (e.g., go to the cinema without choosing the movie, sit in a different chair to notice and embrace the feelings of discomfort that arise. Mindfulness of sounds and thoughts and Body Scan.

SESSION 8: Compassion and gratitude toward the body

Continuation of compassionate training was emphasised. The importance of gratitude for mental health was explained.

Loving kindness meditation was practised.

Gratitude meditation was taught wherein the patients were encouraged to acknowledge all that has supported them in caring for themselves year after year.

Supportive touch was practised and its usefulness to harness the power of physical touch to help us trigger the compassion response. By putting one or two hands on our physical body in a warm, caring, and

gentle way, we can help ourselves to feel safe and comforted. It's important to note that different physical gestures evoke different emotional responses in different people. The invitation is to find a manner of physical touch that feels genuinely supportive, so that you can use this gesture to care for yourself whenever you're under stress.

Find a private space where you don't have to worry about anyone watching you. Below is a list of different ways that people comfort themselves with touch. Go ahead and try them out, and also feel free to experiment on your own. You may want to do this exploration with your eyes closed so you can focus on what feels just right for you.

• One hand over your heart
• Two hands over your heart
• Gently stroking your chest
• Cupping your hand over a fist over your heart
• Prayer position
• One hand on your heart and one on your belly
• Two hands on your belly
• One hand on your cheek
• Cradling your face in your hands
• Crossing your arms and giving yourself a gentle hug
• Gently stroking your arms
• One hand tenderly holding the other
• Clasping your hands together over your heart
• Cupping your hands in your lap

Continue your exploration until you find a type of touch that is truly comforting—everyone is different. Also, recognize that it may take some cultivating to fully experience this; if you notice even a small shift towards safety and comfort with any of these, continue working with it over time. It may also help to remember to do one or more of these when you are feeling good. Doing so builds a positive association that makes the move more powerful when you need to provide yourself with support. Finally, you can try these as you bring someone to mind that you deeply care for. This can build on the feeling of caring and

connection and make the way you hold your hands even more meaningful.

3 min breathing space was practised.

Home assignment

Ten fingers of gratitude

Compassionate body scan

SESSION 9

Committed action continuation and intervention summary was focused on. Engaging in committed action- strategies to overcome expected obstacles was discussed. Summary of intervention how the promoted psychological processes are connected and interact with each other was explained. Loving kindness, Gratitude meditation, Supportive touch was continued. 3 min breathing space was practised.

Obstacles in the river exercise: This is a metaphorical exercise used to help individuals understand and work with their internal barriers and challenges. The exercise is designed to promote psychological flexibility and the ability to engage with life's difficulties more effectively

Metaphor: The "River" in this exercise represents the flow of life. Life is full of challenges, and we often find ourselves trying to avoid or escape these challenges, much like trying to avoid obstacles in a river.

Obstacles: Participants are asked to identify and name the various obstacles or challenges they are facing in their lives. These could be thoughts, emotions, memories, or external life circumstances that they find distressing or challenging.

Acceptance: The first step is to acknowledge and accept the presence of these obstacles. This involves recognizing that, like obstacles in a river, they are a natural part of life. They don't necessarily need to be eliminated.

Commitment: After acknowledging the obstacles, individuals are encouraged to commit to taking action in the direction of their values and life goals. This means moving forward in life despite the presence of these obstacles.

Mindfulness: Mindfulness skills are often integrated into this exercise. Participants are encouraged to be aware of their thoughts, feelings, and bodily sensations as they navigate the river of life. Mindfulness helps them stay present in the moment and not get caught up in avoidance or struggle.

Values: Participants were asked to consider their values, which represent what truly matters to them in life. They are encouraged to align their actions with their values, even in the presence of obstacles.

Common obstacles that people may identify during this exercise include fear, self-doubt, past traumas, and unhelpful thought patterns. The goal is to help individuals build psychological flexibility and resilience by learning to coexist with these obstacles and continue moving forward.

The gardening metaphor: Outcome is the Process through which Process Becomes the Outcome. The patients are explained how needing to attain goals creates motivation and direction for action, but does not provide vitality in life. Attaining goals does not equal happiness or life satisfaction, as one is forced to live in a constant state of deprivation (interestingly, it is pointed out that the etymology of the word "want" is "missing"). The Gardening Metaphor describes how to stick it out with an initial choice (i.e., value) to see what happens (without believing that the "grass is greener on the other side,"). Another "goal" in this phase of therapy is to help clients see that the process of living equals the outcome of interest.

Home assignment

Ten fingers of gratitude

Compassionate body scan

Post test phase:

Post the intervention, the participants were reevaluated for Depression, Anxiety, Perceived stress and Psychological flexibility. They were thanked for their active participation. Any doubts that they may have

were cleared. They were informed about their right to obtain the results of the study, should they ask for it.

STATISTICAL ANALYSIS

Data was described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases), and relative frequencies (percentages) as appropriate. To determine whether the data is normally distributed, a Kolmogorov-Smirnov test was used. Comparison of quantitative variables between the study groups will be done using the student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi-square ($\chi 2$) test will be performed and the Fisher exact test was used when the expected frequency is less than 5. A probability value (p-value) less than 0.05 will be considered statistically significant. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

OBSERVATIONS AND RESULTS

Table 1: Mean age and Percentage of Participants in the Control and Experimental groups.

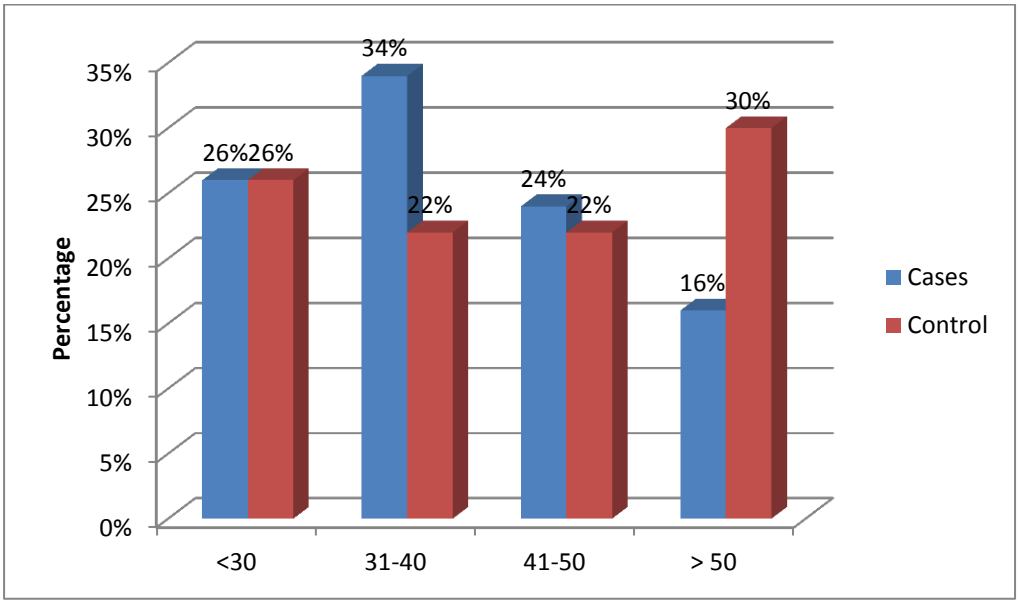
		Cases		Control		Total	Chi-square value	p-value
AGE GROUP	<30	13	26%	13	26%	26	3.46	0.326
	31-40	17	34%	11	22%	28		
	41-50	12	24%	11	22%	23		
	> 50	8	16%	15	30%	23		
Total		50	100%	50	100%	100		

(NS: Not Significant)

	Cases	Control
	Mean	Mean
AGE	38.12	40.98

(NS: Not Significant)

Figure 1: Mean age and Percentage of Participants in the Control and Experimental groups.



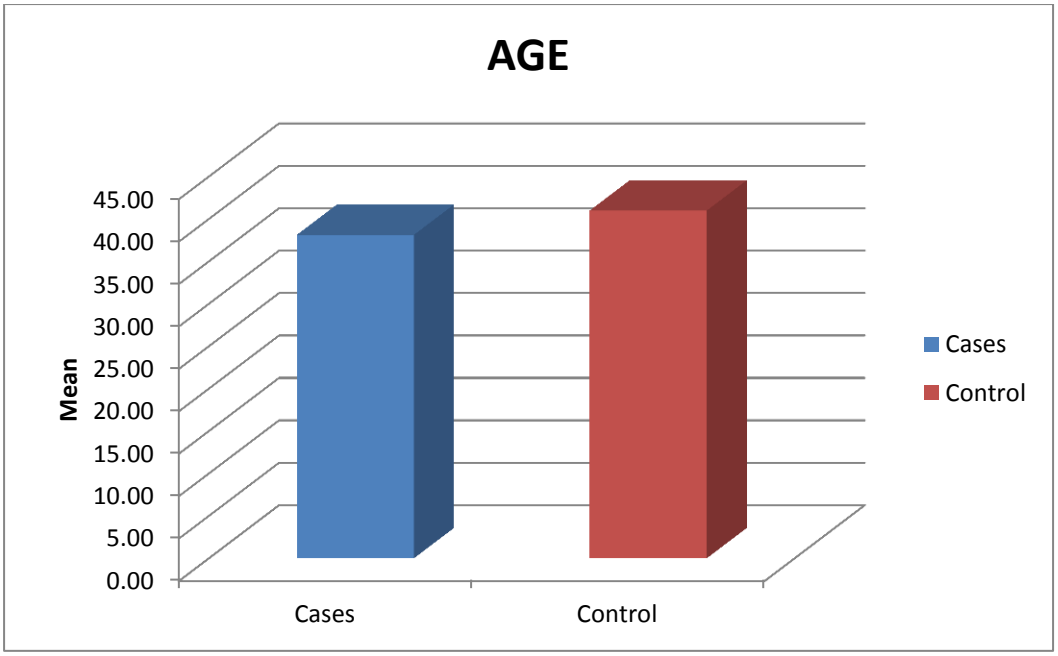

AGE
Mean
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Cases
Control
Cases
Control

Table 2: Gender Distribution of Participants in the Control and Experimental group

		Cases		Control		Total	Chi-square value	p-value
SEX	F	15	30%	27	54%	42	5.911	0.025
	M	35	70%	23	46%	58		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 2: Gender Distribution of Participants in the Control and Experimental groups.

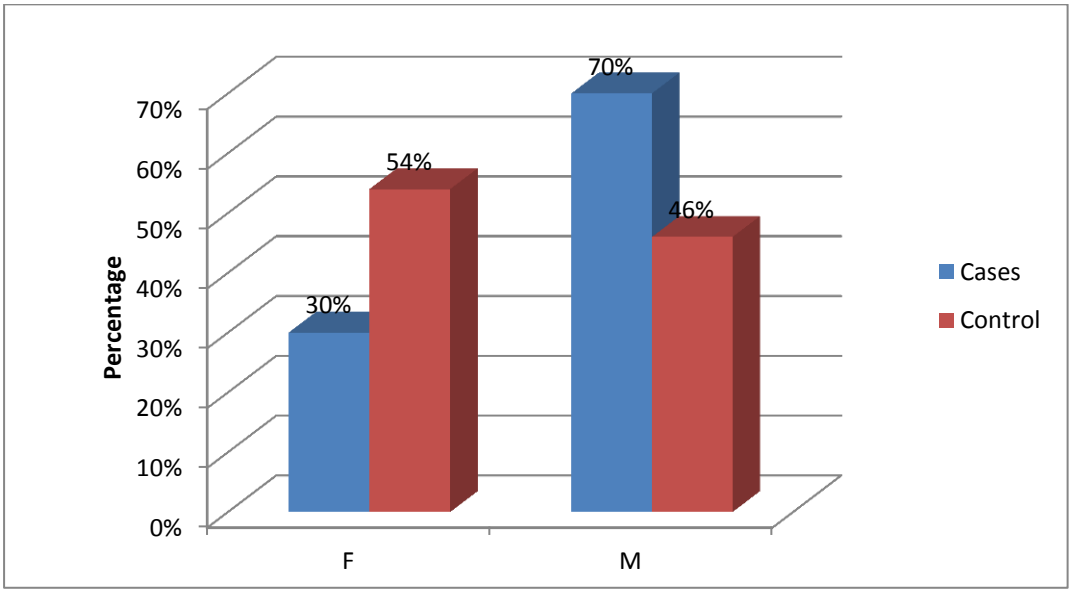


Table 3: Distribution of Participants based on Educational Qualification in the Experimental and Control group.

		Cases		Control		Total	Chi-square value	p-value
EDUCATION	illiterate	0	0%	4	8%	4	6.577	0.160
	10th	11	22%	13	26%	24		
	12th	15	30%	17	34%	32		
	graduate	18	36%	10	20%	28		
	post graduate	6	12%	6	12%	12		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 3: Distribution of Participants based on Educational Qualification in the Experimental and Control group.

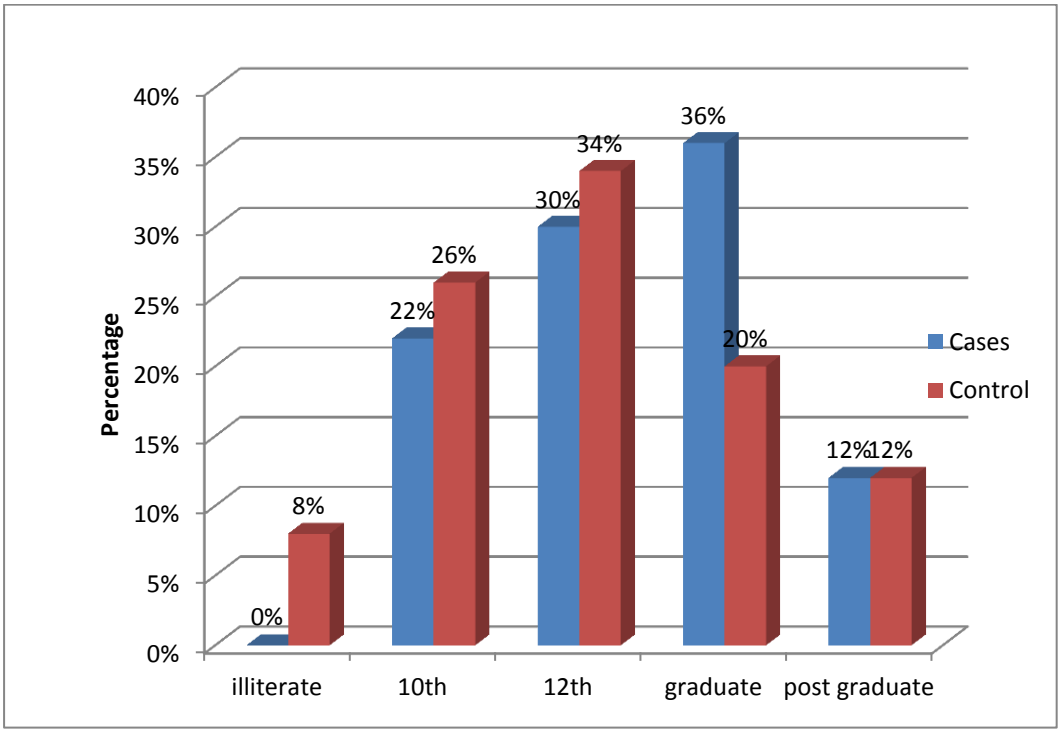


Table 4: Distribution of Participants based on Occupation in the Experimental and Control group.

		Cases		Control		Total	Chi-square value	p-value
OCCU-PATION	farmer/clerical / shop owner	7	14%	5	10%	12	4.883	0.559
	homemaker/ other	9	18%	13	26%	22		
	other	7	14%	3	6%	10		
	professional	11	22%	7	14%	18		
	semiskilled/ skilled	8	16%	13	26%	21		
	student	5	10%	5	10%	10		
	unemployed	3	6%	4	8%	7		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 4: Distribution of Participants based on Occupation.

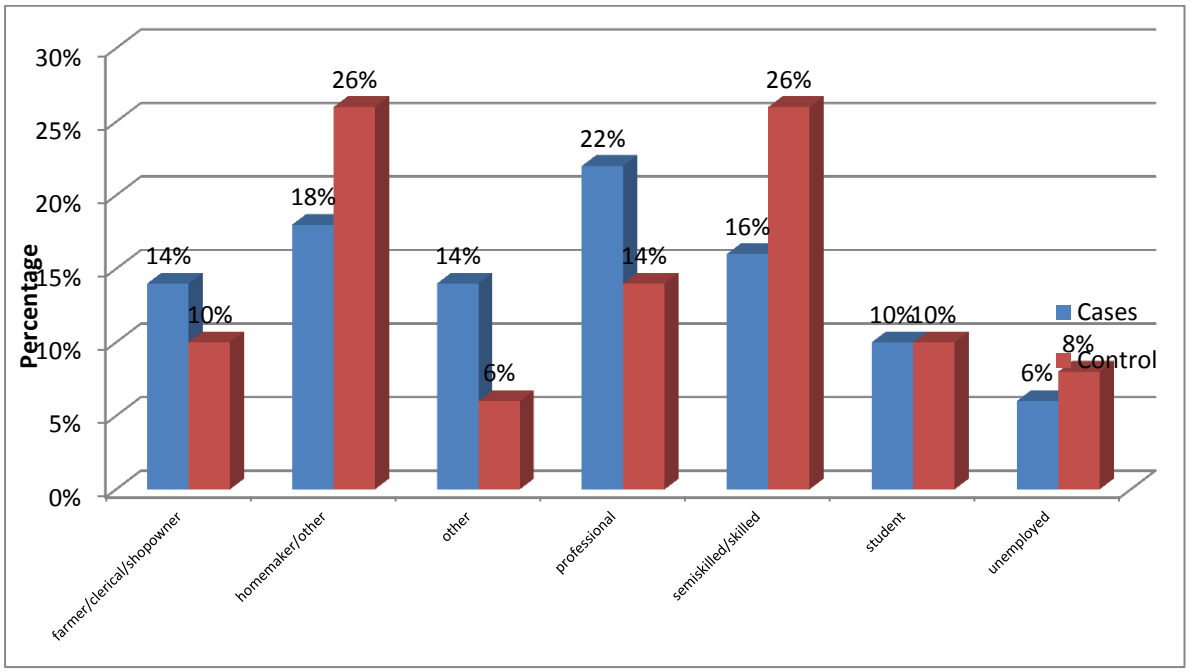


Table 5: Distribution of the Background of the participants in the Experimental and Control groups.

		Cases		Control		Total	Chi-square value	p-value
ADDRESS	R	28	56%	23	46%	51	1.000	0.317
	U	22	44%	27	54%	49		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 5: Distribution of the Background of the participants.

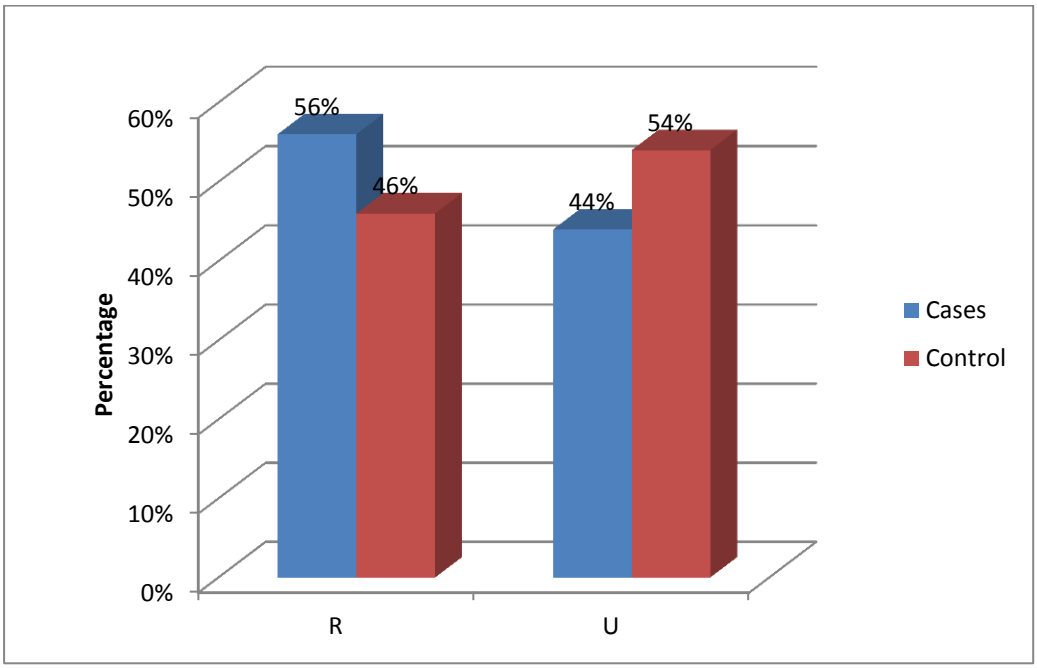


Table 6: Distribution of the Family Type of the participants in the Experimental and Control groups.

		Cases		Control		Total	Chi-square value	p-value
FAMILY TYPE	J	20	40%	12	24%	32	2.941	0.1333
	N	30	60%	38	76%	68		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 6: Distribution of the Family Type of the participants in the Experimental and Control groups.

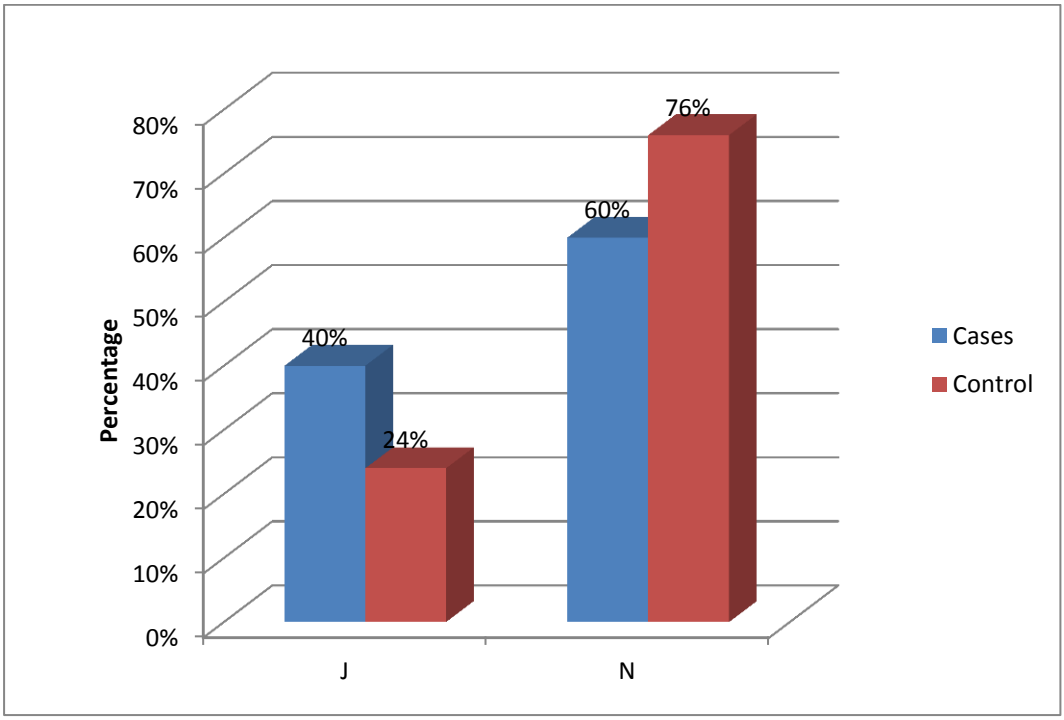


Table 7: Distribution of the Socio-Economic Status of the participants in the Experimental and Control groups.

		Cases		Control		Total	Chi-square value	p-value
SES	L	2	4%	4	8%	6	2.075	0.557
	L.M	19	38%	16	32%	35		
	U	7	14%	4	8%	11		
	U.M	22	44%	26	52%	48		
Total		50	100%	50	100%	100		

(NS: Not Significant)

Figure 7: Distribution of the Socio-Economic Status of the participants in the Experimental and Control groups.

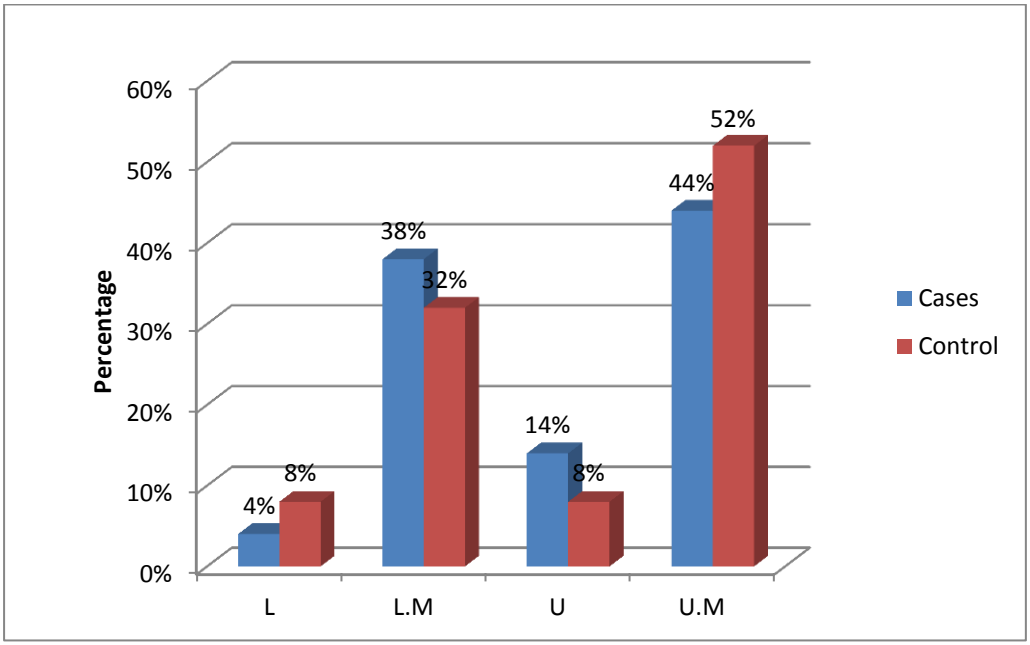


Table 8: Distribution of participants based on Type of IBD in the experimental and control group.

		Cases		Control		Total	Chi-square value	p-value
		No. of cases	%age	No. of cases	%age			
DIAGNOSIS	cd	9	18%	4	8%	13	2.210	0.137
	uc	41	82%	46	92%	87		
Total		50	100%	50	100%	100		

Figure 8: Distribution of participants based on Type of IBD in the experimental and control group.

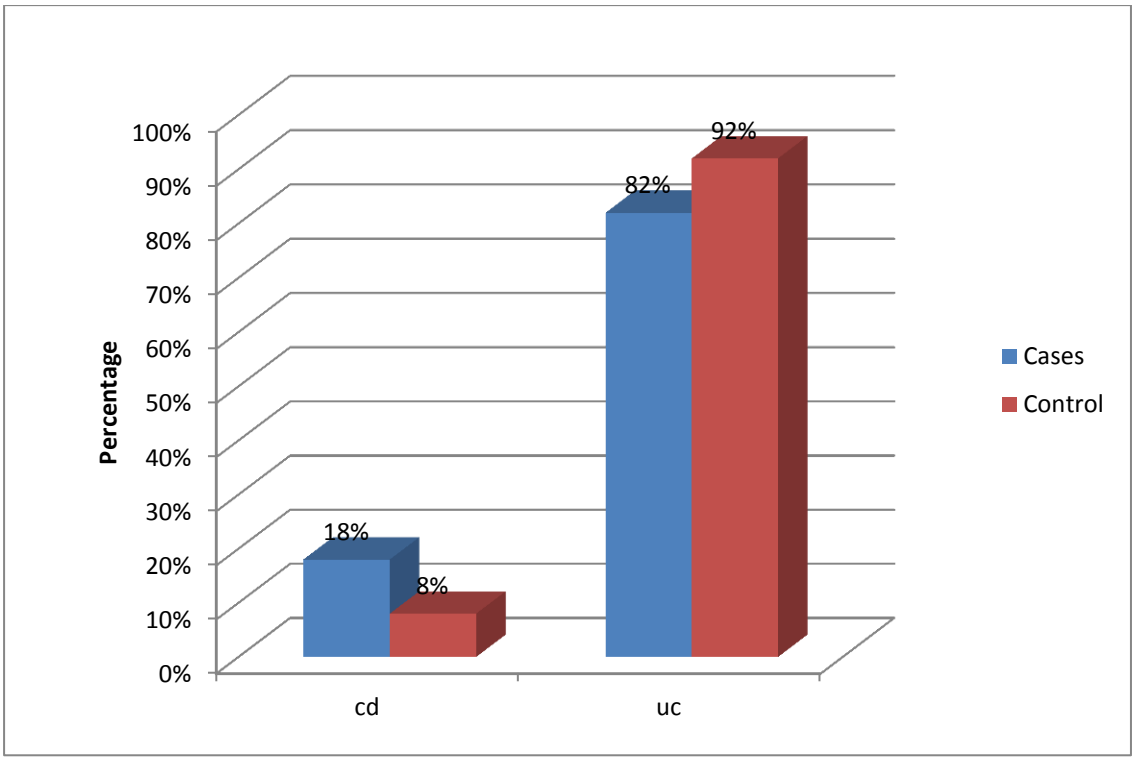


Table 9: Distribution of participants based on Time since diagnosis in the experimental and control group.

	Cases	Control
	Mean	Mean
TIME SINCE DIAGNOSIS	6.68	6.94

Figure 9: Distribution of participants based on Time since diagnosis in the experimental and control group.

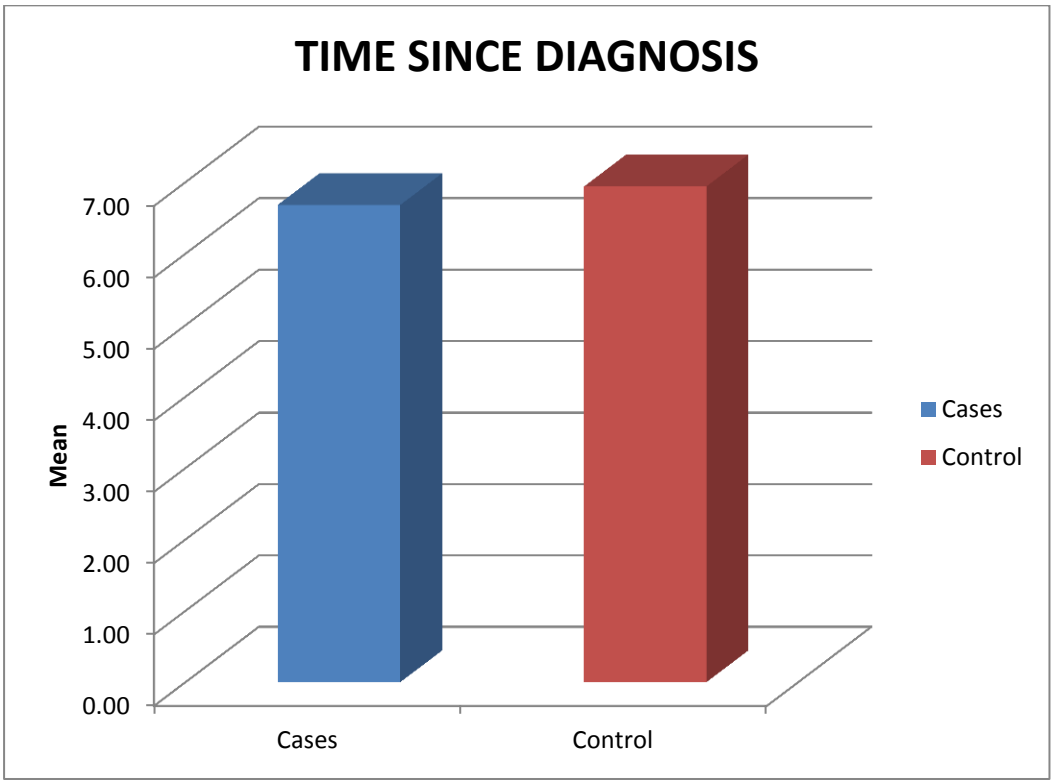


Table 10: Distribution of Pre-intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

	Cases		Control		Z	p-value
	Mean	**SD**	**Mean**	**SD**		
Pre_TOTAL D	13.26	3.41	13.02	3.24	-0.450	0.653
Pre_TOTAL A	13.76	3.84	12.62	3.26	-1.474	0.140
Pre_TOTAL PSS	25.64	5.21	25.32	3.72	-0.792	0.428
Pre_TOTAL PSY FLEX	14.32	3.98	13.12	2.70	-1.823	0.068

(NS: Not Significant)

Figure 10: Distribution of Pre intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

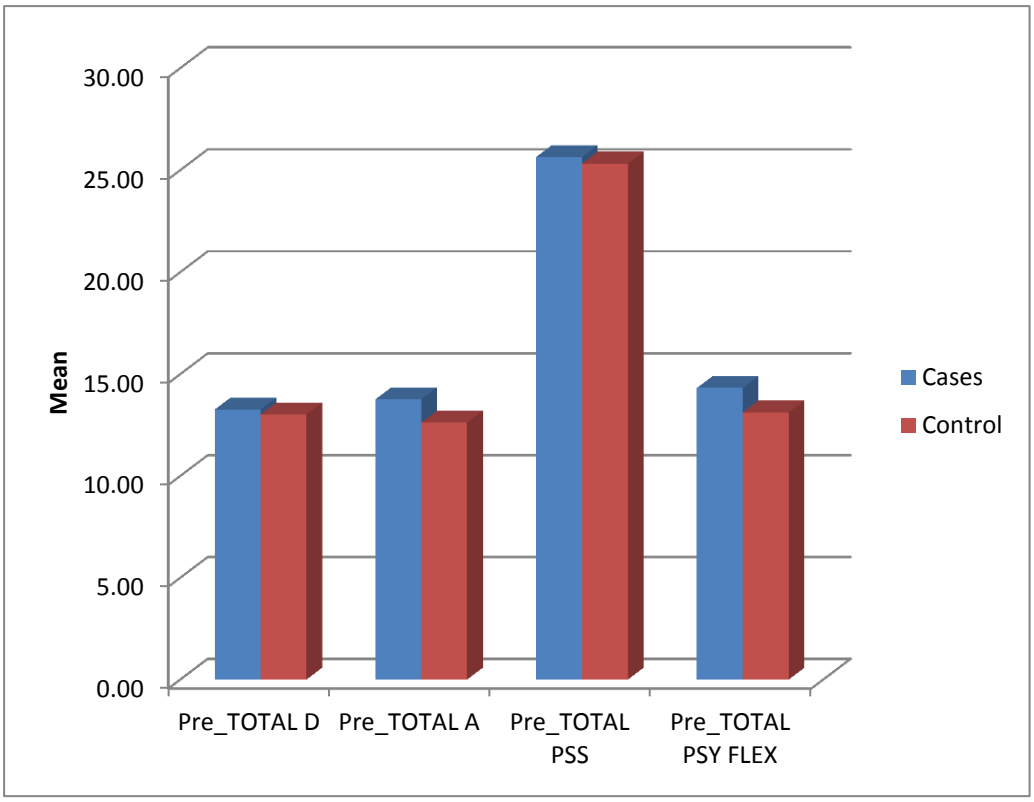


Table 11: Distribution of Post intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

	Cases		Control		Z	p-value
	Mean	SD	Mean	SD		
Post_TOTAL D	6.88	1.97	13.30	3.53	-7.647	0.001
Post_TOTAL A	7.76	3.01	13.62	3.89	-6.582	0.001
Post_TOTAL PSS	15.52	6.61	27.60	5.49	-6.916	0.001
Post_TOTAL PSY FLEX	22.52	4.37	12.92	3.24	-7.831	0.001

Figure 11: Distribution of Post intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

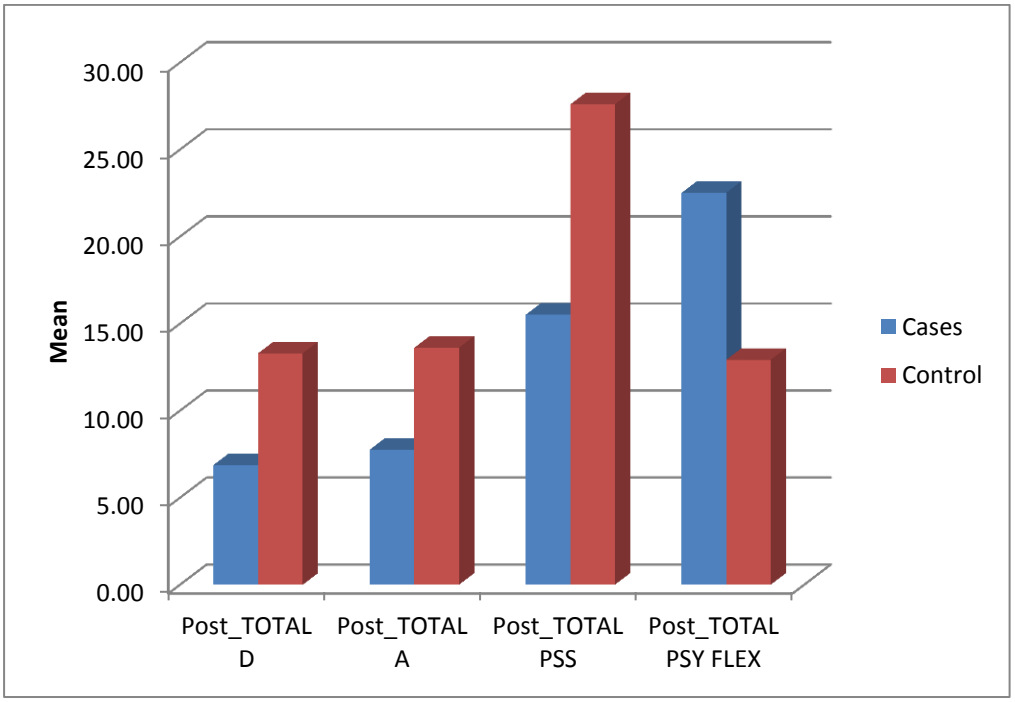


Table 12: Distribution of Difference on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

DIFFERENCE	Cases		Control		Z	p-value
	Mean	SD	Mean	SD		
TOTAL D	6.38	3.09	-0.28	2.98	-7.753	0.001
TOTAL A	6.00	4.10	-1.00	2.89	-7.264	0.001
TOTAL PSS	10.12	6.89	-2.28	5.08	-7.618	0.001
TOTAL PSY FLEX	-8.20	5.55	0.20	2.57	-7.497	0.001

Figure 12: Distribution of Difference on Depression, Anxiety, Perceived Stress and Psychological Flexibility in the Experimental and Control groups.

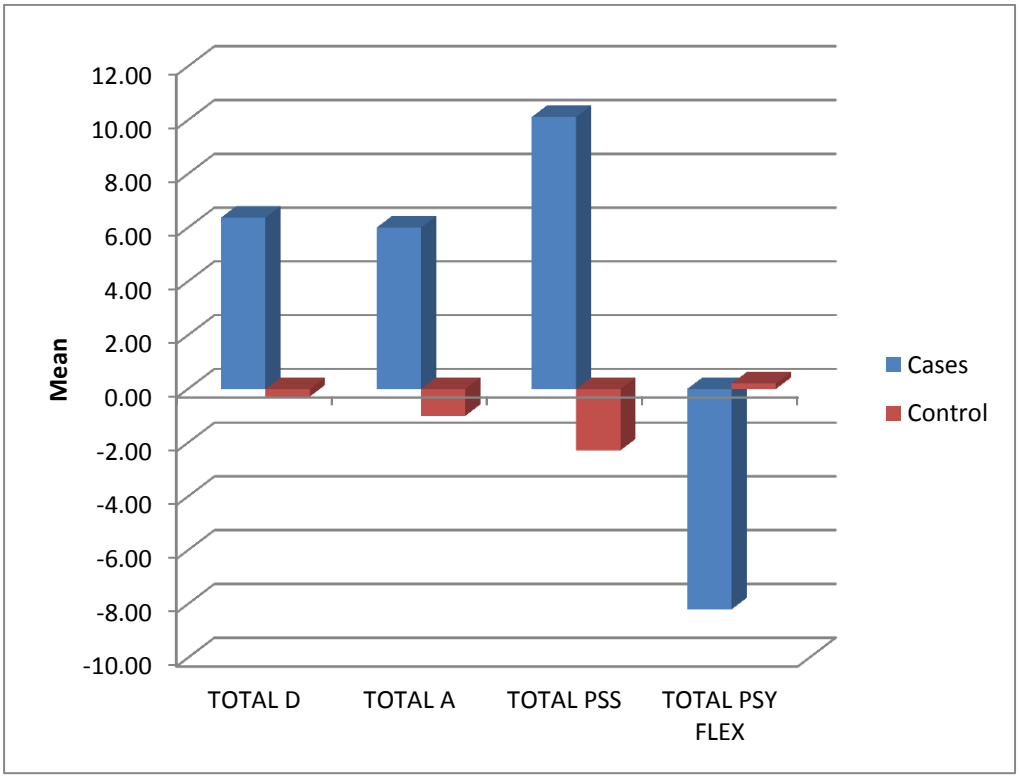
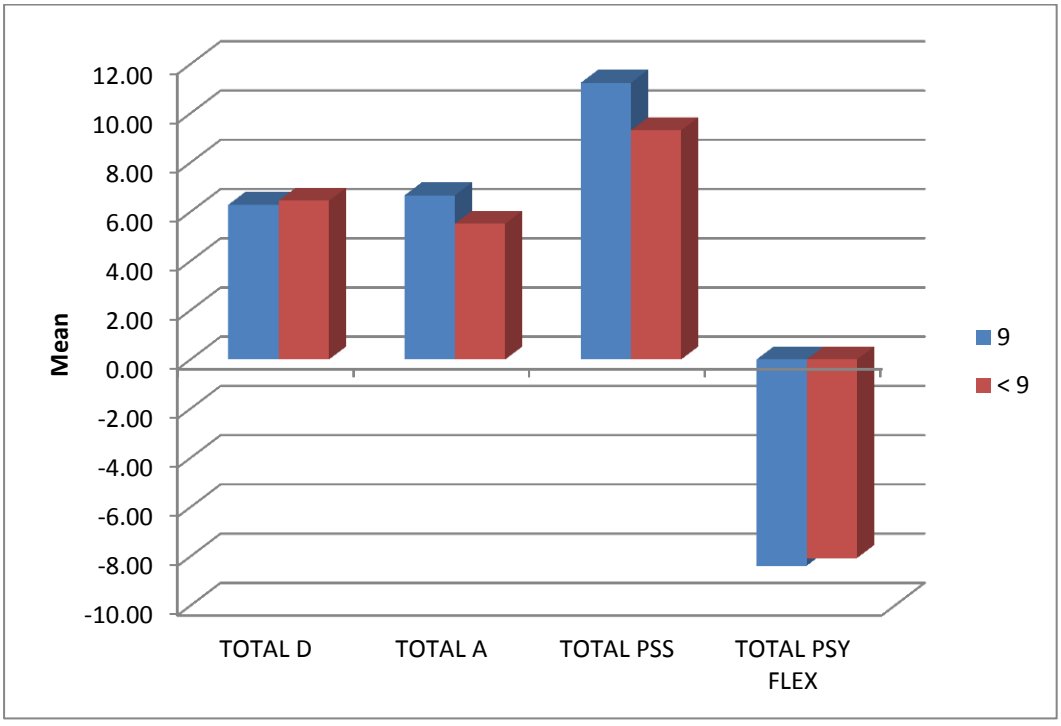


Table 13: Comparison based on Number of sessions and Post intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility.

No. of Sessions	9		< 9		Z	p-value
	Mean	SD	Mean	SD		
Post_TOTAL D	6.81	1.44	6.93	2.30	-0.132	0.895
Post_TOTAL A	6.52	1.44	8.66	3.53	-2.397	0.017
Post_TOTAL PSS	12.86	3.73	17.45	7.57	-2.288	0.022
Post_TOTAL PSY FLEX	22.81	5.00	22.31	3.93	-0.720	0.471

Figure 13: Comparison based on Number of sessions and Post intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility.



RESULTS

The current research aimed to investigate the combined effects of Acceptance and Commitment Therapy (ACT) and compassion-based interventions on depression, anxiety, perceived stress, and psychological flexibility among patients with Inflammatory Bowel Disease (IBD). The study was conducted at the Gastroenterology Department of Dayanand Medical College and Hospital in Ludhiana. A total of 100 participants, aged between 18 and 65, were enrolled in the research. Prior to their participation, all individuals provided written consent and completed a socio-demographic questionnaire. Participants were assessed using the Hospital Anxiety and Depression Scale, Perceived Stress Scale, and Psy-Flex Scale both before and after the intervention, for both the experimental and control groups. The experimental group engaged in sessions that integrated Acceptance and Commitment Therapy with Compassion-Based Intervention. The collected data was then organized and analyzed using the SPSS software. The following results were obtained.

Table 1 represents the distribution of IBD patients of different age groups in the experimental and control group. The maximum number of patients in the experimental group are between the ages of 31-40 years (34%) whereas in the control group the maximum number of patients are above the age of 50 years (30%). The mean age in the experimental group was 38 years on the other hand, the mean age for the control group was 41 years.

Table 2 represents the gender distribution in the experimental and control group. In the experimental group the maximum number of patients were males (70%) and in the control group the maximum number of patients were females (54%).

Table 3 represents the distribution of the education qualification of IBD patients in the experimental and control groups. In the experimental group 36% patients were graduate followed by 30% who had studied

up to 12th grade, 12% were post graduate and 22% had studied up to 10th grade. In the control group, most of the patients had studied up to 12th grade (34%). 26% had studied up to 10th grade followed by 20% who were graduate, 12% were postgraduate and 8% were illiterate.

Table 4 represents the distribution of the IBD patients based on their occupation. In the experimental group, the maximum number of patients worked as a professional (22%) followed by homemakers (18%), skilled/semiskilled workers (16%), farmers/shop owners/clerical (14%), students (10%) and unemployed individuals (6%) whereas in the control group, the maximum number of patients had skilled/semiskilled occupation (26%) or were homemakers (26%) followed by professionals (14%), farmers/shop owners/clerical (10%), students (10%) and unemployed individuals (8%).

Table 5 represents the distribution of patients based on their background in Urban or Rural areas. The maximum number of patients were from the rural area in the experimental group i.e., 56% whereas the maximum number of patients in the control group were from urban areas i.e., 54%.

Table 6 represents the distribution of patients based on family type. In both experimental (60%) and control (76%) groups the maximum number of patients were from the Nuclear family.

Table 7 represents the distribution based on Socio Economic Status of the patients. In both the experimental and control groups, the maximum number of patients belonged to the upper middle socio-economic status (experimental: 44%; control: 52%) followed lower middle (experimental: 38%; control: 32%), lower SES (experimental: 4%; control: 8%) and upper SES (experimental: 14%; control: 8%).

Table 8 represents distribution of participants based on Type of IBD in the experimental and control groups. The maximum number of patients

both in the experimental (82%) and control (92%) groups were diagnosed with ulcerative colitis. The differences in the distribution of cases between the Crohn's disease and Ulcerative colitis groups was not statistically significant.

Table 9 represents the distribution of participants based on Time since diagnosis. For the experimental group, the mean 'Time since diagnosis' was 6.68. whereas for the control group, the mean was 6.94. The difference between the two was not statistically significant indicating homogeneity of the two groups.

Table 10 represents pre-intervention scores of the experimental and control groups.

For the Depressive symptoms, there is a very minor difference between the Experimental and Control groups. The Experimental group has a slightly higher mean (13.26) compared to the Control group (13.02), but this difference is not statistically significant. The Z-score is -0.450, and the p-value is 0.653, both of which are above the common significance level of 0.05. This suggests that the difference in Depression between the two groups is not statistically significant.

Similarly, for the Anxiety, the Experimental group has a slightly higher mean (13.76) compared to the control group (12.62). However, the difference is not statistically significant. The Z-score is -1.474, and the p-value is 0.140, which is still above the common significance level.

For Perceived Stress the experimental and control groups have very similar means the difference is not statistically significant, with a Z-score of -0.792 and a p-value of 0.428.

For Psychological Flexibility, there is a slight difference between the groups, with the experimental group having a slightly higher mean (14.32) compared to the control group (13.12). However, this difference is not statistically significant. The Z-score is -1.823, and the p-value is 0.068, which is close to the common significance level but still above it.

This suggests that the difference in Psychological Flexibility between the two groups may not be statistically significant.

In summary, this table indicates that before the intervention or treatment, there are no statistically significant differences between the experimental and control groups for any of the four variables: Depression, Anxiety, Perceived Stress and Psychological Flexibility. The differences in means are small, and the p-values are above the common significance level of 0.05, suggesting that these differences could be due to random variation or chance. Further analysis was done after the intervention to determine if there are any significant changes in these variables.

Table 11 represents the post-intervention scores of the experimental and control groups.

For Depression, the experimental group has a significantly lower mean (6.88) compared to the Control group (13.30). This suggests that, after the intervention, the experimental group scored much lower in Depression compared to the control group. The very low p-value (0.001) and a highly negative Z-score (-7.647) indicate a highly statistically significant difference.

Similarly, for Anxiety, the experimental group has a significantly lower mean (7.76) compared to the Control group (13.62). This indicates a significant difference between the groups, with the experimental group scoring much lower in Anxiety. The low p-value (0.001) and a highly negative Z-score (-6.582) again indicate a highly statistically significant difference.

For Perceived stress, the experimental group also has a significantly lower mean (15.52) compared to the control group (27.60). This suggests a significant difference, with the experimental group scoring much lower in Perceived stress. The very low p-value (0.001) and a highly negative Z-score (-6.916) indicate a highly statistically significant difference.

For Psychological Flexibility, the experimental group has a significantly higher mean (22.52) compared to the control group (12.92). This time, the experimental group scored much higher than the control group. The Z-score is highly negative (-7.831), and the p-value is very low (0.001), demonstrating a highly statistically significant difference.

In summary, this table indicates that after the intervention or treatment, there are highly statistically significant differences between the experimental and control groups for all four variables: Depression, Anxiety, Perceived Stress and Psychological Flexibility. The specific direction of the differences varies depending on the variable, with the experimental group scoring lower in three variables and scoring higher in one variable. These results suggest that the intervention or treatment had a significant impact on the outcomes measured by these variables.

Table 12 represents a significant difference in scores in the experimental and control groups. The patients who underwent sessions of Acceptance and Commitment therapy along with compassion-based intervention showed a significant decrease in symptoms of Depression, Anxiety, and Perceived Stress and an increase in Psychological Flexibility.

For Depression, the Experimental group has a significantly higher mean (6.38) compared to the Control group (-0.28). This suggests that the group's scores in Depression are substantially higher than those of the Control group. The very low p-value (0.001) and a highly negative Z-score (-7.753) indicate a highly statistically significant difference.

For Anxiety, similarly, for the Anxiety, the experimental group has a notably higher mean (6.00) compared to the Control group (-1.00). This indicates a significant difference between the groups, with the experimental group scoring much higher in Anxiety. The low p-value (0.001) and a highly negative Z-score (-7.264) again indicate a highly statistically significant difference.

For Perceived Stress, the experimental group also has a significantly higher mean (10.12) compared to the Control group (-2.28) for the Perceived stress. This suggests a significant difference, with the experimental group scoring much higher in Perceived stress. The very low p-value (0.001) and a highly negative Z-score (-7.618) indicate a highly statistically significant difference.

For Psychological Flexibility, the direction of the difference is reversed. The Control group has a higher mean (0.20) compared to the Experimental group (-8.20). However, similar to the other variables, the Z-score is highly negative (-7.497), and the p-value is very low (0.001), signifying a highly significant difference.

In summary, this table shows that there are highly statistically significant differences between the experimental and control groups for all four variables: Depression, Anxiety, Perceived stress and Psychological Flexibility. The specific direction of the differences varies depending on the variable, with the experimental group scoring higher in three variables and the control group scoring higher in one variable. These results indicate significant group differences in these variables.

Table 13 represents the comparison of Number of sessions and the post-intervention scores on Depression, Anxiety, Perceived Stress and Psychological Flexibility. It was found that both groups i.e., those who received 9 sessions and those who received less than 9 sessions showed significant improvement. However, Anxiety and Perceived Stress were significantly lower for patients who received 9 sessions as opposed to those who received less than 9 sessions. Depression and Psychological Flexibility showed no significant difference based on the number of sessions.

For Post interventions Anxiety scores the p-value is 0.017, which is less than 0.05. This suggests that the change in mean from before to after the sessions is statistically significant.

For Post intervention scores on Perceived Stress the p-value is 0.022, also indicating a statistically significant change.

For Depression and Psychological Flexibility, the p-values are 0.895 and 0.471, respectively. These p-values are greater than 0.05, suggesting that the changes in these variables may not be statistically significant.

In summary, based on the number of sessions, it appears that Anxiety and Perceived Stress showed statistically significant changes before and after the sessions, while Depression and Psychological Flexibility did not show significant changes.

DISCUSSION

The current research aimed to investigate the combined effects of Acceptance and Commitment Therapy (ACT) and compassion-based interventions on depression, anxiety, perceived stress, and psychological flexibility among patients with Inflammatory Bowel Disease (IBD). The study was conducted at the Gastroenterology Department of Dayanand Medical College and Hospital in Ludhiana. A total of 100 participants, aged between 18 and 65, were enrolled in the research. Prior to their participation, all individuals provided written consent and completed a socio-demographic questionnaire. Participants were assessed using the Hospital Anxiety and Depression Scale, Perceived Stress Scale, and Psy-Flex Scale both before and after the intervention, for both the experimental and control groups. The experimental group engaged in sessions that integrated Acceptance and Commitment Therapy with Compassion-Based Intervention. The collected data was then organized and analyzed using the SPSS software. The results have been discussed below in the light of prevailing research evidence.

SOCIODEMOGRAPHIC VARIABLES

Data was described in the terms of age, gender, educational qualification, occupation, family types, background and socioeconomic status.

AGE

The study was conducted on the adult participants in the age group 18-65 years. The mean age in the experimental group was 38 years on the other hand, the mean age for the control group was 41 years. The mean ages for the both the groups were compared using t-test and the value obtained was not statistically significant. Thus, the groups were homogeneous on the basis of distribution of age. Similar findings in

terms of age distribution were found in studies by Sood et al. (2003) [84], Ray (2016) [85] and Kedia and Ahuja, 2017.[10]

GENDER

In the experimental group the maximum number of patients were males (70%) and in the control group the maximum number of patients were females (54%). Similar findings in terms of gender were found in studies by Ng et al., (2016) [86], Sood et al. (2020) [87] and Snell et al., (2021).[88]

EDUCATIONAL QUALIFICATION

In the experimental group 36% patients were graduate followed by 30% who had studied up to 12th grade, 12% were post graduate and 22% had studied up to 10th grade. In the control group, most of the patients had studied up to 12th grade (34%). 26% had studied up to 10th grade followed by 20% who were graduate, 12% were postgraduate and 8% were illiterate. Similar findings were found by Sathyaprabha (2021).[89]

OCCUPATION

In the experimental group, the maximum number of patients worked as a professional (22%) followed by homemakers (18%), skilled/semiskilled workers (16%), farmers/shop owners/clerical (14%), students (10%) and unemployed individuals (6%) whereas in the control group, the maximum number of patients had skilled/semiskilled occupation (26%) or were homemakers (26%) followed by professionals (14%), farmers/shop owners/clerical (10%), students (10%) and unemployed individuals (8%). Similar findings were found by Sathyaprabha (2021).[89]

BACKGROUND

The maximum number of patients were from the rural area in the experimental group i.e., 56% whereas the maximum number of

patients in the control group were from urban areas i.e., 54%. A study by Banerjee et al., (2023) describes the prevalence of IBD in rural and urban areas.[90] The difference was based on chance factors. Similar findings were found by Sathyaprabha (2021).[89]

FAMILY TYPE

In both the experimental and control group the maximum number of patients were from the Nuclear family, 60% and 76% respectively. Similar findings were found by Sathyaprabha, 2021.[89]

SOCIO ECONOMIC STATUS

In both the experimental and control groups, the maximum number of patients belonged to the upper middle socio-economic status (experimental: 44%; control: 52%) followed lower middle (experimental: 38%; control: 32%), lower SES (experimental: 4%; control: 8%) and upper SES (experimental: 14%; control: 8%).

Similar findings were found by Sathyaprabha (2021) [89], Ajit Sood et al. (2021).[87]

TYPE OF IBD

The maximum number of patients both in the experimental (82%) and control (92%) groups were diagnosed with ulcerative colitis. The differences in the distribution of cases between the Crohn's disease and Ulcerative colitis groups was not statistically significant indicating homogeneity of the two groups. Similar findings were found by Ajit Sood et al. (2021). [87]

TIME SINCE DIAGNOSIS

For the experimental group, the mean 'Time since diagnosis' was 6.68. whereas for the control group, the mean was 6.94. The difference between the two was not statistically significant indicating homogeneity of the two groups. Similar findings were found by Ajit Sood et al. (2021).[87]

EFFECT OF ACT ALONG WITH COMPASSION BASED INTERVENTION ON DEPRESSION, ANXIETY, PERCEIVED STRESS AND PSYCHOLOGICAL FLEXIBILITY AMONG PATIENTS WITH INFLAMMATORY BOWEL DISEASE

The current study aimed to study pre and post effects of Acceptance and Commitment Therapy along with compassion-based intervention on depression, anxiety, perceived stress and psychological flexibility among patients with Inflammatory bowel disease.

Depression

For the Depressive symptoms, there is a very minor difference between the Experimental and Control groups. The Experimental group has a slightly higher mean (13.26) compared to the Control group (13.02), but this difference is not statistically significant. The Z-score is -0.450, and the p-value is 0.653, both of which are above the common significance level of 0.05. This suggests that the difference in Depression between the two groups is not statistically significant.

For Depression, the experimental group has a significantly lower mean (6.88) compared to the Control group (13.30). This suggests that, after the intervention, the experimental group scored much lower in Depression compared to the control group. The very low p-value (0.001) and a highly negative Z-score (-7.647) indicate a highly statistically significant difference.

Hence, the current findings showing the effectiveness of ACT and Compassion based intervention in decreasing the symptoms of depression in IBD patients were supported by literature given by Dober et al., (2021)[91], Trindade and Sirois (2021) [92], Kok et al. (2023) [93] and Trindade et al., 2017.[94]

Anxiety

For the pre intervention scores the experimental group has a slightly higher mean (13.76) compared to the control group (12.62). However,

the difference is not statistically significant. The Z-score is -1.474, and the p-value is 0.140, which is still above the common significance level.

For the post intervention scores, Anxiety in the experimental group has a significantly lower mean (7.76) compared to the control group (13.62). This indicates a significant difference between the groups, with the experimental group scoring much lower in Anxiety. The low p-value (0.001) and a highly negative Z-score (-6.582) again indicate a highly statistically significant difference.

The current findings showing the effectiveness of ACT along with compassion based along with Compassion based intervention in decreasing the symptoms of anxiety in IBD patients were supported by literature given by Ferrarese et al.[95], Carvalho et al. (2022) [69], Dindo et al., 2017 [96] and Han and Kim (2022).[97]

Perceived Stress Scale

For the pre intervention scores the experimental and control groups had very similar means the difference is not statistically significant, with a Z-score of -0.792 and a p-value of 0.428.

For the post intervention scores the experimental group also had a significantly lower mean (15.52) compared to the control group (27.60). This suggests a significant difference, with the experimental group scoring much lower in Perceived stress. The very low p-value (0.001) and a highly negative Z-score (-6.916) indicate a highly statistically significant difference.

The current findings showing the effectiveness of ACT along with compassion based intervention in decreasing the perceived stress in IBD patients were supported by literature given by Lavelle et al. (2022)[98], Mulcahy et al.(2017) [99], Saghaie et al., (2022) [100] and Sabour and Kakabraee (2016).[101]

Psychological Flexibility

For the pre intervention scores, there is a slight difference between the groups, with the experimental group having a slightly higher mean (14.32) compared to the control group (13.12). However, this difference is not statistically significant. The Z-score is -1.823, and the p-value is 0.068, which is close to the common significance level but still above it. This suggests that the difference in Psychological Flexibility between the two groups may not be statistically significant.

Post the intervention, the experimental group had a significantly higher mean (22.52) compared to the control group (12.92). This time, the experimental group scored much higher than the control group. The Z-score is highly negative (-7.831), and the p-value is very low (0.001), demonstrating a highly statistically significant difference.

The current findings showing the effectiveness of ACT along with Compassion based intervention in increasing Psychological Flexibility were supported by literature given by Han and Kim (2022) [97], Baer (2010) [102], Wersebe et al. (2018) [103] and Fledderus et al., 2013 [104]

DIFFERENCE

The patients who underwent sessions of Acceptance and Commitment therapy along with compassion-based intervention showed a significant decrease in symptoms of Depression, Anxiety, Perceived Stress and increase in Psychological Flexibility.

For Depression, the experimental group has a significantly higher mean (6.38) compared to the control group (-0.28). This suggests that the group's scores in Depression are substantially higher than those of the control group indicating a highly statistically significant difference.

For Anxiety, similarly, for the Anxiety, the experimental group has a notably higher mean (6.00) compared to the Control group (-1.00). This indicates a significant difference between the groups, with the experimental group scoring much higher in Anxiety indicating a highly statistically significant difference.

For Perceived Stress, the experimental group also has a significantly higher mean (10.12) compared to the Control group (-2.28) for the Perceived stress. This suggests a significant difference, with the experimental group scoring much higher in Perceived stress indicating a highly statistically significant difference.

For Psychological Flexibility, the direction of the difference is reversed. The control group has a higher mean (0.20) compared to the experimental group (-8.20) signifying a highly significant difference.

In summary, this table shows that there are highly statistically significant differences between the experimental and control groups for all four variables: Depression, Anxiety, Perceived stress and Psychological Flexibility. The specific direction of the differences varies depending on the variable, with the experimental group scoring higher in three variables and the control group scoring higher in one variable. These results indicate significant group differences in these variables.

NUMBER OF SESSIONS

Number of sessions had a statistically significant alteration in the levels of Anxiety and Perceived Stress whereas there were no statistically significant changes noted in Depression and Psychological Flexibility with respect to number of sessions. These findings indicate the varying effects of the therapy sessions on different psychological variables.

Nevertheless, the current study found significant improvement in both groups of patients i.e., 9 sessions and less than 9 sessions. Previous findings by Lavelle et al. (2022) [98], Kohtala et al. (2015) [105], Larsson et al. (2022) [106], Ruiz et al. (2020) [61], Han and Kim (2023) [107] and Lennard et al. (2021) [108] support the effectiveness of Acceptance and Commitment Therapy and Compassion based interventions comprising of less than 9 sessions.

LIMITATIONS

- The study was not representative of the population in terms of the gender.
- The current study was a hospital-based study in a tertiary care hospital in an urban region of Punjab. This might limit the generalizability of the study to the Indian population.
- The tools used in the study were self-report tools. Even though the tools had a good reliability and validity, there is a risk of socially desirable answers in the case of self-report tools.
- Use, modification and generalisation of a Western model of therapy- ACT on a predominantly Punjabi population has its own challenges.
- Drop outs due to patient factors were recorded.

SUMMARY AND CONCLUSION

The current research aimed to investigate the combined effects of Acceptance and Commitment Therapy (ACT) and compassion-based interventions on depression, anxiety, perceived stress, and psychological flexibility among patients with Inflammatory Bowel Disease (IBD). The study was conducted at the Gastroenterology Department of Dayanand Medical College and Hospital in Ludhiana. A total of 100 participants, aged between 18 and 65, were enrolled in the research. Prior to their participation, all individuals provided written consent and completed a socio-demographic questionnaire. Participants were assessed using the Hospital Anxiety and Depression Scale, Perceived Stress Scale, and Psy-Flex Scale both before and after the intervention, for both the experimental and control groups. The experimental group engaged in sessions that integrated Acceptance and Commitment Therapy with Compassion-Based Intervention. The collected data was then organized and analyzed using the SPSS software. The results obtained were discussed in the light of existing research evidence.

The following points were noted in the current study:

- The maximum number of patients in the experimental group are between the ages of 31-40 years (34%) whereas in the control group the maximum number of patients are above the age of 50 years (30%). The mean age in the experimental group was 38 years on the other hand, the mean age for the control group was 41 years.

- In the experimental group the maximum number of patients were males (70%) and in the control group the maximum number of patients were females (54%).

- In the experimental group 36% patients were graduate followed by 30% who had studied up to 12th grade, 12% were post graduate and 22% had studied up to 10th grade. In the control group, most of the patients had studied up to 12th grade (34%), 26% had studied up to 10th grade followed by 20% who were graduate, 12% were postgraduate and 8% were illiterate.

- In the experimental group, the maximum number of patients worked as a professional (22%) followed by homemakers (18%), skilled/semiskilled workers (16%), farmers/shop owners/clerical (14%), students (10%) and unemployed individuals (6%) whereas in the control group, the maximum number of patients had skilled/semiskilled occupation (26%) or were homemakers (26%) followed by professionals (14%), farmers/shop owners/clerical (10%), students (10%) and unemployed individuals (8%).

- The maximum number of patients were from the rural area in the experimental group i.e., 56% whereas the maximum number of patients in the control group were from urban areas i.e., 54%.

- In both experimental and control groups the maximum number of patients were from the Nuclear family. The distribution was 60% and 76% respectively.

- In both the experimental and control groups, the maximum number of patients belonged to the upper middle socio-economic status (experimental: 44%; control: 52%) followed lower middle (experimental: 38%; control: 32%), lower SES (experimental: 4%; control: 8%) and upper SES (experimental: 14%; control: 8%).

- The maximum number of patients, both in the experimental (82%) and control (92%) groups were diagnosed with ulcerative

colitis. The differences in the distribution of cases between the Crohn's disease and Ulcerative colitis groups was not statistically significant.

- For the experimental group, the mean 'Time since diagnosis' was 6.68. whereas for the control group, the mean was 6.94. The difference between the two was not statistically significant.

- There was a substantial positive impact of ACT and compassion-based intervention on the symptoms of Depression, Anxiety, Perceived Stress and Psychological Flexibility.
- The number of sessions had a significant impact on Anxiety and Perceived Stress. The scores on Anxiety in the patients who received 9 sessions and those who received less than 9 sessions were 6.52 and 8.66 respectively. The scores on Perceived Stress in the patients who received 9 sessions and those who received less than 9 sessions were 12.86 and 17.45 respectively.

In summary, the utilization of Acceptance and Commitment Therapy in conjunction with Compassion-based interventions yielded favourable outcomes with respect to alleviating Depression, Anxiety, Perceived Stress, and enhancing Psychological Flexibility in individuals diagnosed with Inflammatory Bowel Disease (IBD). The effectiveness of ACT and Compassion-based interventions as therapeutic modalities for IBD patients in Punjab has been substantiated. This study's results make a valuable addition to the existing body of knowledge concerning the impact of ACT and Compassion-based interventions on depressive symptoms, anxiety, perceived stress, and psychological flexibility.

FUTURE DIRECTIONS

The results of this study demonstrate the efficacy of Acceptance and Commitment Therapy (ACT) and compassion-based interventions in improving the well-being of patients with Inflammatory Bowel Disease (IBD), specifically in reducing symptoms of Depression, Anxiety, Perceived Stress, and enhancing Psychological Flexibility. Therefore, this comprehensive therapeutic approach can serve as a valuable option for the holistic treatment of IBD patients. Future research endeavours may involve larger sample sizes and comparisons between different IBD subtypes, as well as evaluating the effectiveness of ACT in comparison to other therapeutic models to provide valuable insights.

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KEY TO MASTER CHART

M	Male
F	Female
R	Rural
U	Urban
N	Nuclear
J	Joint
UM	Upper Middle
LM	Lower Middle
U	Upper
L	Lower
D	Depression
A	Anxiety
PSS	Perceived Stress Scale
PSY-FLEX	Psychological Flexibility

S.No.	NAME	AGE	SEX	MRD	EDUCATION	OCCUPATION	ADDRESS	FAMILY TYPE	EDUCATION OF HEAD OF FAMILY	OCCUPATION OF HEAD OF FAMILY	SES	DIAGNOSIS
1	A.S	34	M	260791	graduate	semiskilled/skilled	R	J	graduate/post graduate	semi skilled worker	U.M	uc
2	A	24	M	1034242	post graduate	professional	R	N	high school	semi skilled worker	L.M	uc
3	K.K	41	F	336456	10th	homemaker/other	U	N	high school	farmer	U.M	uc
4	D.S	32	M	1304199	graduate	other	R	J	diploma	unemployed	U	uc
5	A.K	45	F	94117	12th	homemaker/other	R	J	diploma	clerical, shopowner/farm	U.M	cd
6	B.S	46	M	828628	10th	farmer/clerical/shopowner	R	N	10th	farmer/clerical/shopowner	L.M	uc
7	K.S	39	F	1443301	post graduate	professional	U	J	graduate/postgraduate	professional	U.M	cd
8	P.K	57	M	1260228	10th	farmer/clerical/shopowner	R	N	10th	farmer/clerical/shopowner	U.	uc
9	C.M	32	M	127703	graduate	other	U	J	high school	professional	L.M	cd
10	M	45	M	1562493	12th	professional	U	J	middle school	unemployed	U.M	uc
11	G.S	18	M	1479522	12th	student	U	N	12th	unskilled	L.M	uc
12	J.S	59	M	123515	10th	farmer/clerical/shopowner	R	N	10th	farmer/clerical/shopowner	L.M	uc
13	A.R	21	M	767673	12th	student	R	J	graduate/postgraduate	professional	U.M	cd
14	A.G	23	M	1568954	graduate	professional	R	N	professional degree	clerical, shopowner/farm	L.M	cd
15	S.K	40	M	1582423	graduate	professional	R	N	graduate	professional	U.	uc
16	S.P	58	M	1469786	12th	other	R	N	12th	other	U.M	uc
17	A.D	32	M	672201	post graduate	other	R	J	high school	clerical, shopowner/farm	L.M	uc
18	S.G	29	M	43501	graduate	professional	U	N	graduate/postgraduate	professional	U.M	cd
19	S.K	25	F	901533	graduate	student	U	N	diploma	clerical, shopowner/farm	U	uc
20	M.M	35	F	1574382	graduate	unemployed	U	N	graduate/postgraduate	semi skilled worker	U	uc
21	A.S	26	M	1531720	graduate	other	R	N	primary school	clerical, shopowner/farm	U.M	uc
22	S.L	40	M	771988	graduate	semi skilled/skilled worker	R	N	graduate	semi skilled/skilled worker	U.M	uc
23	S.S	51	M	138404	post graduate	other	R	N	post graduate	other	U.M	uc
24	R.K	48	F	557240	graduate	other	R	N	diploma	clerical, shopowner/farm	L.M	uc
25	K.R	50	F	1275017	10th	homemaker/other	U	N	diploma	clerical, shopowner/farm	U.M	uc
26	N.L	59	M	69427	graduate	professional	R	J	graduate	professional	U.	uc
27	A.M	36	M	967082	graduate	professional	U	J	graduate/postgraduate	professional	U.M	uc
28	R.B	40	M	1015793	10th	farmer/clerical/shopowner	R	J	10th	farmer/clerical/shopowner	L	uc
29	K.K	45	F	1130006	12th	homemaker/other	R	N	diploma	professional	U.M	uc
30	H.S	18	M	1229158	12th	student	R	J	primary school	farmer/clerical/shopowner	L.M	uc
31	A	33	M	234760	12th	semi skilled/skilled worker	R	J	12th	semi-skilled/skilled worker	U.M	uc
32	P.G	31	F	1145210	12th	homemaker/other	U	N	high school	clerical, shopowner/farm	L.M	uc
33	V.S	58	F	649372	12th	homemaker/other	U	N	graduate/postgraduate	professional	L.M	cd
34	A.S	20	M	1557527	12th	student	R	J	primary school	clerical, shopowner/farm	L.M	uc
35	H.S	42	M	1570424	10th	semi skilled/skilled worker	R	J	primary school	clerical, shopowner/farm	L.M	uc
36	S.S	59	M	1572230	graduate	semi skilled/skilled worker	U	J	graduate/postgraduate	semi-professional	U.M	uc
37	G.K	44	F	1477742	10th	unemployed	R	J	middle school	clerical, shopowner/farm	L	uc
38	R.B	22	M	1319906	12th	semi skilled/skilled worker	R	N	high school	unskilled	L.M	uc
39	M.P	30	F	1282818	graduate	unemployed	U	N	professional degree	professional	U.M	uc
40	N.T	42	M	1497476	12th	semi skilled/skilled worker	U	J	graduate/postgraduate	professional	L.M	cd
41	H.S	35	M	310486	post graduate	professional	U	N	graduate/postgraduate	professional	U.M	cd
42	A.M	46	M	1170579	graduate	professional	U	J	graduate	professional	U	uc
43	S.K	55	F	448405	graduate	homemaker/other	U	N	graduate/postgraduate	clerical, shopowner/farm	U.M	uc
44	B.B	38	M	872694	10th	semi skilled/skilled worker	U	J	10th	semi-skilled/skilled worker	L.M	uc
45	G.S	32	M	51414	graduate	farmer/clerical/shopowner	R	N	graduate/postgraduate	clerical, shopowner/farm	U.M	uc
46	R.R	41	F	855161	12th	homemaker/other	U	N	diploma	clerical, shopowner/farm	L.M	uc
47	V.G	39	M	726365	10th	farmer/clerical/shopowner	R	N	10th	farmer/clerical/shopowner	U.M	uc
48	K.K	37	F	1557288	10th	homemaker/other	U	N	diploma	unskilled	L.M	uc
49	D.S	26	M	675741	post graduate	professional	U	N	diploma	professional	L.M	uc
50	H.S	28	M	1428588	12th	farmer/clerical/shopowner	R	N	diploma	semi-professional	U.M	uc

S.No.	NAME	TIME SINCE DIAGNOSIS	Pre Intervention Scores				No. of Sessions	Post Intervention Scores			
			TOTAL D	TOTAL A	TOTAL PSS	TOTAL PSY FLEX		TOTAL D	TOTAL A	TOTAL PSS	TOTAL PSY FLEX
1	A.S	15 yrs	21	21	31	7	9	10	9	15	22
2	A	2 yrs	14	12	22	15	9	7	6	15	18
3	K.K	21yrs	16	15	29	14	9	7	7	12	29
4	D.S	1 yr	11	10	30	15	9	6	5	21	19
5	A.K	8yrs	13	17	29	10	9	6	8	22	11
6	B.S	17yrs	19	21	32	7	9	8	9	14	29
7	K.S	10 yrs	11	9	8	23	9	7	7	6	25
8	P.K	7yrs	17	21	33	9	9	8	8	10	20
9	C.M	10yrs	16	16	28	15	9	6	6	12	13
10	M	1yr	10	9	13	20	9	5	6	11	26
11	G.S	1yr	10	9	23	14	9	6	5	13	22
12	J.S	15yrs	18	20	20	28	9	7	9	14	28
13	A.R	3yrs	8	10	21	18	9	7	6	10	25
14	A.G	1 week	10	9	24	16	9	6	5	13	18
15	S.K	1yr	15	18	30	10	9	7	7	12	22
16	S.P	15yrs	13	9	22	14	9	5	7	13	26
17	A.D	4 yrs	10	9	26	18	9	4	6	15	26
18	S.G	1 yr	9	8	25	12	9	7	5	14	22
19	S.K	9yrs	12	8	24	8	9	7	6	8	26
20	M.M	2yrs	13	13	20	12	9	10	6	11	29
21	A.S	1yr	9	13	16	18	9	7	4	9	23
22	S.L	4yrs	19	14	36	6	5	8	6	23	21
23	S.S	34yrs	10	9	19	17	5	4	6	17	25
24	R.K	9yrs	13	16	26	15	5	5	9	23	27
25	K.R	1yr	16	9	23	12	5	8	10	13	18
26	N.L	11yrs	9	11	27	15	5	6	10	8	20
27	A.M	10yrs	10	9	23	11	5	7	5	5	20
28	R.B	2yrs	15	15	28	14	5	7	8	4	18
29	K.K	3yrs	18	14	23	14	5	8	7	12	20
30	H.S	1yr	15	14	33	12	5	6	14	10	29
31	A	3yrs	8	12	25	12	4	5	12	9	26
32	P.G	>1yr	15	16	25	15	4	6	10	15	23
33	V.S	4yrs	16	18	26	16	4	9	7	25	26
34	A.S	2yrs	9	14	31	19	4	5	15	27	20
35	H.S	>1yr	10	12	22	19	4	6	7	8	20
36	S.S	>1yr	16	16	27	15	4	9	5	15	17
37	G.K	>1yr	18	20	29	11	4	7	8	26	14
38	R.B	1yr	16	17	26	16	4	5	7	15	21
39	M.P	1yr	9	17	30	18	2	4	5	25	24
40	N.T	>1yr	16	15	26	14	2	7	6	15	27
41	H.S	6yrs	9	12	20	13	2	4	6	22	25
42	A.M	30yrs	14	16	26	16	2	14	11	20	24
43	S.K	24yrs	14	17	26	11	2	13	20	27	27
44	B.B	11yrs	13	19	34	15	2	5	8	15	28
45	G.S	11yrs	11	12	28	13	2	7	4	30	25
46	R.R	9yrs	10	12	25	14	2	7	10	13	17
47	V.G	>1yr	15	13	30	15	2	7	7	9	25
48	K.K	3yrs	16	16	27	12	2	8	13	26	23
49	D.S	3yrs	17	16	29	16	2	7	7	26	17
50	H.S	1yr	11	10	26	17	2	7	8	23	20

S.No.	NAME	AGE	SEX	MRD	EDUCATION	OCCUPATION	ADDRESS	FAMILY TYPE	EDUCATION OF HEAD OF FAMILY	OCCUPATION OF HEAD OF FAMILY	SES	DIAGNOSIS
51	P.	35	F	527869	graduate	homemaker/other	R	N	high school	clerical, shopowner/farm	U.M	uc
52	R.K	40	F	1036058	post graduate	professional	U	N	graduate/postgraduate	professional	U.M	uc
53	G.S	36	M	720747	10th	semi skilled/skilled worker	R	J	10th	semi-skilled/skilled worker	L.M	uc
54	J.S	19	M	1516338	12th	student	R	N	diploma	unskilled	L.M	uc
55	J.S	53	M	1080428	graduate	professional	R	N	graduate	professional	U.	uc
56	B.K	53	F	1660426	illiterate	unemployed	R	N	high school	clerical, shopowner/farm	L	uc
57	R.K	49	F	1559011	12th	homemaker/other	U	N	high school	semi-skilled/skilled worker	L.M	uc
58	B.S	52	M	1558310	12th	semi-skilled/skilled worker	R	N	graduate/postgraduate	professional	L.M	uc
59	V.B	40	F	1532413	post graduate	professional	R	N	professional degree	professional	U.M	uc
60	G.S	54	M	1104424	10th	semi-skilled/skilled worker	R	N	10th	semi-skilled/skilled worker	L.M	uc
61	J.K	36	F	1326036	10th	homemaker/other	R	J	primary school	unemployed	U.M	uc
62	M.K	57	F	964449	10th	other	U	N	graduate/postgraduate	clerical, shopowner/farm	U.M	uc
63	S	34	F	161206	post graduate	homemaker/other	U	N	high school	clerical, shopowner/farm	U.M	uc
64	J.K	48	F	42893	post graduate	professional	U	J	professional degree	professional	U	uc
65	G.B	30	M	1301758	graduate	semiskilled/skilled	R	N	high school	semi-skilled	U.M	uc
66	P.	48	F	1081054	12th	homemaker/other	R	N	high school	clerical, shopowner/farm	U.M	uc
67	M.D	47	F	89456	10th	homemaker/other	U	N	high school	semi-skilled worker	L.M	uc
68	T.G	18	M	1550161	12th	student	U	N	graduate/postgraduate	professional	U.M	uc
69	S.K	30	F	412654	graduate	semi-skilled/skilled worker	U	J	high school	other	U.M	uc
70	S.	47	M	1273619	10th	other	U	N	high school	semi-skilled	U.M	uc
71	K.S	59	M	765615	graduate	farmer/clerical/shopowner	R	N	graduate/postgraduate	clerical, shopowner/farm	L.M	uc
72	S	21	M	1550655	12th	farmer/clerical/shopowner	U	J	diploma	professional	U.	uc
73	P.	29	F	1538093	graduate	homemaker/other	U	N	graduate/postgradute	professional	U	uc
74	R.G	41	F	775226	post graduate	professional	U	N	post graduate	professional	U.M	uc
75	S.S	56	M	1234145	12th	semi-skilled/skilled worker	R	N	12th	semi-skilled/skilled worker	U.M	cd
76	M.	52	F	1545754	illiterate	unemployed	U	J	middle school	semi-skilled	L.M	uc
77	D.K	18	F	1550700	12th	student	U	N	high school	clerical, shopowner/farm	U.M	uc
78	P.K	52	M	1435042	graduate	semi skilled/skilled worker	U	N	graduate/postgraduate	professional	U.M	uc
79	K.K	21	F	1510248	12th	student	R	N	high school	semi-skilled worker	L.	uc
80	R.S	51	M	832434	10th	semi-skilled/skilled worker	R	N	high school	semi-skilled/skilled worker	L.M	uc
81	M.M	40	F	1195327	post graduate	homemaker/other	R	N	high school	semi-skilled worker	L.M	uc
82	P.S	29	M	1528037	12th	semi-skilled/skilled worker	R	J	illiterate	clerical, shopowner/farm	L.M	uc
83	K.K	49	F	1038337	12th	homemaker/other	R	N	high school	clerical, shopowner/farm	L.M	uc
84	G.S	24	M	1482518	graduate	professional	U	N	middle school	semi-skilled/skilled worker	U.M	uc
85	B.K	54	F	820332	10th	homemaker/other	U	N	graduate/postgraduate	semi-professional	U.M	cd
86	M	52	F	1545754	illiterate	homemaker/other	U	J	illiterate	unemployed	L	uc
87	S.H	59	M	1538183	12th	semi-skilled/skilled worker	U	N	graduate/postgraduate	semi-professional	U.M	uc
88	M.K	36	F	1022777	10th	homemaker/other	R	J	illiterate	clerical, shopowner/farm	U.M	uc
89	R	59	F	905058	10th	homemaker/other	U	J	high school	clerical, shopowner/farm	L	uc
90	H.S	19	M	1307266	12th	student	U	N	middle school	other	U.M	uc
91	S.S	42	M	188112	12th	farmer/clerical/shopowner	U	N	middle school	semi-skilled	L.M	uc
92	L	32	F	678866	12th	farmer/clerical/shopowner	U	N	middle school	clerical, shopowner/farm	U.M	cd
93	G.S	27	M	1333023	10th	semi-skilled/skilled worker	U	N	professional degree	professional	U.M	uc
94	G.K	50	F	1587276	illiterate	unemployed	R	N	primary school	clerical, shopowner/farm	L.M	uc
95	P.K	46	M	1400950	10th	semi-skilled/skilled worker	U	N	professional degree	semi-professional	U.M	uc
96	K.S	48	M	1174352	12th	semi-skilled/skilled worker	U	N	professional degree	professional	U.M	uc
97	S	36	M	1166207	graduate	professional	U	J	graduate/postgraduate	professional	U.M	uc
98	G.K	30	F	1554287	graduate	unemployed	R	N	middle school	clerical, shopowner/farm	L.M	cd
99	K.K	40	F	1347184	10th	other	R	N	middle school	semi-skilled worker	U.M	uc
100	G.S	51	M	1133477	12th	farmer/clerical/shopowner	R	J	diploma	clerical, shopowner/farm	L.M	uc

S.No.	NAME	TIME SINCE DIAGNOSIS	Pre Intervention Scores				No. of Sessions	Post Intervention Scores			
			TOTAL D	TOTAL A	TOTAL PSS	TOTAL PSY FLEX		TOTAL D	TOTAL A	TOTAL PSS	TOTAL PSY FLEX
51	P.	4yrs	12	8	21	12	C	12	8	22	13
52	R.K	<15yr	16	12	30	19	C	13	14	31	17
53	G.S	<10yr	10	14	25	13	C	16	15	27	13
54	J.S	<4yrs	15	12	27	14	C	17	17	34	14
55	J.S	<10yrs	16	12	24	12	C	15	12	24	13
56	B.K	<11yrs	13	8	16	17	C	10	9	17	15
57	R.K	<24yr	10	14	24	13	C	16	16	22	15
58	B.S	<11yrs	13	15	28	12	C	12	16	28	11
59	V.B	<11yrs	14	13	28	9	C	14	10	32	9
60	G.S	<5yrs	14	15	25	7	C	17	19	26	8
61	J.K	<15yrs	9	18	27	19	C	8	19	35	17
62	M.K	<5yr	12	14	27	15	C	10	13	36	15
63	S	<5yrs	14	8	30	10	C	11	10	29	12
64	J.K	<5yrs	10	18	30	16	C	16	16	31	17
65	G.B	<4yrs	14	14	25	14	C	13	18	25	13
66	P.	<3yrs	17	19	24	9	C	8	20	23	6
67	M.D	<10yrs	15	14	22	11	C	14	18	22	13
68	T.G	2yrs	15	17	25	11	C	19	17	32	11
69	S.K	<10yrs	8	16	35	11	C	10	15	38	13
70	S.	<4yrs	16	12	24	12	C	16	12	36	11
71	K.S	<10yrs	13	9	26	13	C	12	7	30	8
72	S	<4yrs	9	16	21	15	C	13	17	18	15
73	P.	<4yrs	11	10	26	13	C	11	15	27	12
74	R.G	<10yrs	12	19	32	16	C	12	17	25	15
75	S.S	<12yrs	15	11	26	12	C	13	10	24	13
76	M.	<10yrs	20	8	20	17	C	19	10	36	20
77	D.K	<1yr	8	10	18	17	C	5	15	38	18
78	P.K	2yrs	11	11	26	11	C	13	18	24	21
79	K.K	<3yr	19	8	28	11	C	18	6	27	13
80	R.S	>10yrs	14	14	25	13	C	15	11	25	11
81	M.M	>5yrs	14	12	23	13	C	15	14	22	6
82	P.S	>10yrs	14	13	28	15	C	11	15	30	13
83	K.K	>5yrs	15	12	25	14	C	13	8	25	15
84	G.S	>1yr	17	10	27	15	C	19	14	23	15
85	B.K	3yrs	20	19	31	13	C	17	19	34	9
86	M	>1yr	18	11	31	14	C	18	12	39	13
87	S.H	>10yrs	9	9	30	12	C	8	8	31	13
88	M.K	>5yrs	14	9	22	13	C	18	16	23	16
89	R	>5yrs	16	17	25	9	C	15	17	32	9
90	H.S	2yrs	15	13	25	9	C	15	12	25	11
91	S.S	10yrs	8	11	20	17	C	11	20	21	11
92	L	>5yrs	9	13	20	17	C	9	14	20	17
93	G.S	>5yr	8	8	22	14	C	7	8	29	13
94	G.K	5yrs	12	17	23	16	C	16	16	22	15
95	P.K	6yrs	8	11	21	14	C	15	11	33	16
96	K.S	>5yrs	10	10	23	13	C	11	15	23	11
97	S	>5yrs	10	8	27	12	C	8	8	25	12
98	G.K	>10yrs	11	11	25	11	C	10	6	28	9
99	K.K	>10yrs	13	14	26	9	C	12	13	24	9
100	G.S	>5yrs	15	14	27	12	C	19	15	27	11

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal

8-10 = Borderline abnormal (borderline case)

11-21 = Abnormal (case)

Perceived Stress Scale

A more precise measure of personal stress can be determined by using a variety of instruments that have been designed to help measure individual stress levels. The first of these is called the **Perceived Stress Scale**.

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The tool, while originally developed in 1983, remains a popular choice for helping us understand how different situations affect our feelings and our perceived stress. The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar, there are differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, don't try to count up the number of times you felt a particular way; rather indicate the alternative that seems like a reasonable estimate.

For each question choose from the following alternatives:
0 - never 1 - almost never 2 - sometimes 3 - fairly often 4 - very often

_____ l. In the last month, how often have you been upset because of something that happened unexpectedly?

_____ 2. In the last month, how often have you felt that you were unable to control the important things in your life?

_____ 3. In the last month, how often have you felt nervous and stressed?

_____ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?

_____ 5. In the last month, how often have you felt that things were going your way?

_____ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?

_____ 7. In the last month, how often have you been able to control irritations in your life?

_____ 8. In the last month, how often have you felt that you were on top of things?

_____ 9. In the last month, how often have you been angered because of things that happened that were outside of your control?

_____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Figuring Your PSS Score

You can determine your PSS score by following these directions:

- First, reverse your scores for questions 4, 5, 7, and 8. On these 4 questions, change the scores like this:

  0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0.

- Now add up your scores for each item to get a total. **My total score is _____.**

- Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress.
  - ▶ Scores ranging from 0-13 would be considered low stress.
  - ▶ Scores ranging from 14-26 would be considered moderate stress.
  - ▶ Scores ranging from 27-40 would be considered high perceived stress.

The Perceived Stress Scale is interesting and important because your perception of what is happening in your life is most important. Consider the idea that two individuals could have the exact same events and experiences in their lives for the past month. Depending on their perception, total score could put one of those individuals in the low stress category and the total score could put the second person in the high stress category.

Disclaimer: *The scores on the following self-assessment do not reflect any particular diagnosis or course of treatment. They are meant as a tool to help assess your level of stress. If you have any further concerns about your current well being, you may contact EAP and talk confidentially to one of our specialists.*

«**Psy-Flex**»
Questionnaire

Instructions: The questions refer to your experiences in the last seven days.

1. Even if I am somewhere else with my thoughts, I can focus on what's going on in important moments.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

2. If need be, I can let unpleasant thoughts and experiences happen without having to get rid of them immediately.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

3. I can look at hindering thoughts from a distance without letting them control me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

4. Even if thoughts and experiences are confusing me I can notice something like a steady core inside of me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

5. I determine what's important for me and decide what I want to use my energy for.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

6. I engage thoroughly in things that are important, useful, or meaningful to me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

«**Psy-Flex**»

Instruction sheet

Gloster, A. T., Block, V. J., Klotsche, J., Villanueva, J., Rinner, M. T. B., Benoy, C., Walter, M., Karekla, M., Bader, K. (2021). Psy-Flex: A contextually sensitive measure of psychological flexibility. *Journal of Contextual Behavioral Science*, *22*, 13–23. https://doi.org/10.1016/J.JCBS.2021.09.001

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1. Being present

Even if I am somewhere else with my thoughts, I can focus on what's going on in important moments.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

2. Being open for experiences

If need be, I can let unpleasant thoughts and experiences happen without having to get rid of them immediately.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

3. Leaving thoughts be

I can look at hindering thoughts from a distance without letting them control me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

4. Steady self

Even if thoughts and experiences are confusing me I can notice something like a steady core inside of me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

5. Awareness of one's own values

I determine what's important for me and decide what I want to use my energy for.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

6. Being engaged

I engage thoroughly in things that are important, useful, or meaningful to me.

very often	often	from time to time	seldom	very seldom
⑤	④	③	②	①

Scoring instructions: Sum all 6 answers. The higher the sum, the higher the psychological flexibility.
English version by: Andrew Gloster (send feedback to: *andrew.gloster@unibas.ch*). *Updated 10/2021.*
Latest English validation study: Gloster AT, Block VJ, Klotsche J, et al. Psy-Flex: A contextually sensitive measure of psychological flexibility. J Context Behav Sci 2021;22:13–23. doi:10.1016/J.JCBS.2021.09.001

TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

DISSERTATION PROPOSAL

FOR APPROVAL OF SUBJECT OF DISSERTATION TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

M. PHIL

IN

CLINICAL PSYCHOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

MAY 2022

AMANEET KAUR GANDHI

DEPARTMENT OF CLINICAL PSYCHOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF DISSERTATION

Title	TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE
For the degree of	M. Phil Clinical Psychology
Name of the candidate	Ms. Amaneet Kaur Gandhi
Supervisor	Dr. Bholeshwar Prasad Mishra, Professor & Head, Department of Clinical Psychology, DMCH, Ludhiana
Co-supervisor	Dr. Ajit Sood, Professor & Head, Department of Gastroenterology, DMCH, Ludhiana Palak Upadhyay, Assistant Professor, Department of Clinical Psychology, DMCH, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Inflammatory Bowel Disease is a chronic condition that has been associated with clinical psychological symptoms of depression, anxiety and perceived stress. Acceptance and Commitment Therapy and Compassion based interventions enhance psychological flexibility which promotes mental health and well-being.

Aim of Study: To study pre and post effects of ACT along with compassion-based intervention in patients with Inflammatory Bowel Disease. To study the effect of ACT along with compassion-based intervention in control and experimental group.

Materials & methods: The study will be conducted on 100 patients with Inflammatory Bowel Disease presented in Gastroenterology IPD and OPD. Pre and post psychological evaluation will be done using Hospital Anxiety and Depression Scale, Perceived Stress Scale and Psychological Flexibility Scale. The experimental group (50 patients) will undergo pre and post-test evaluation with Acceptance and Commitment Therapy along with Compassion-based intervention. The control group (50 patients) will undergo only pre and post-test evaluation. The experimental and control group will be compared in terms of depression, anxiety, perceived stress and psychological flexibility.

Clinical Significance: The study will contribute to the knowledge of psychological management of Depression, Anxiety and perceived stress in patients with Inflammatory Bowel Disease. It will have direct and practical implications in inculcating psychotherapeutic intervention for holistic management of Inflammatory Bowel Disease.

Keywords: Inflammatory Bowel Disease, Acceptance and Commitment Therapy, Compassion.

(Signature) Candidate	(Signature) Co-supervisor	(Signature) Co-supervisor	(Signature) Supervisor	(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of dissertation titled **"TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE"** exist in the Department of Clinical Psychology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the dissertation is genuine and is collected by the candidate herself under our supervision and guidance.

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APPROVAL PROFORMA
BY RESEARCH & ETHICAL COMMITTEE
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Name of candidate	Ms. Amaneet Kaur Gandhi
Department	Clinical Psychology
Topic of Dissertation	TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE
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Date of enrollment	01.03.2022
Name of Head of Department	Dr. Bholeshwar Prasad Mishra
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Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
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Approved: Yes / ~~No~~

Dr. Sandeep Puri
Chairperson
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PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	MS. AMANEET KAUR GANDHI
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3	COURSE OF STUDY AND SUBJECT	M. PHIL. CLINICAL PSYCHOLOGY
4	DATE OF ADMISSION OF COURSE	01.03.2022
5	TITLE OF THE TOPIC	TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Inflammatory bowel disease (IBD) is a group of illnesses characterised by chronic intestinal inflammation. The following are examples of IBD: Inflammation and sores (ulcers) occur along the superficial lining of the large intestine (colon) and rectum in ulcerative colitis. Crohn's disease is an inflammatory bowel disease (IBD) characterised by inflammation of the digestive tract lining, which affects the deeper layers of the digestive tract.

Inflammatory bowel disease (IBD) is stabilising or declining in most high-income nations, while it looks to be rapidly increasing elsewhere. According to Rupa Banerjee, the existing research reveals that India has one of the highest rates of IBD in the world (IBD Center, Asian Institute of Gastroenterology, Hyderabad, India). It's unclear how many Indians have IBD, but according to a 2017 study, about 11 million people have ulcerative colitis. Crohn's disease affects an estimated 300,000 additional Indians. As a result, IBD is on the rise in India. The country's large population, along with increased incidence, is likely to result in a significant disease burden.[1]

Depression and anxiety are emotional problems that have been linked to inflammatory bowel disease.[2] Emotional disorders (such as depression and anxiety disorders) are a group of chronic and frequently repeated psychiatric disorders that cause severe impairment in quality of life, productivity, and interpersonal functioning. Depression is characterised by persistent sadness of mood, fatiguability, and anhedonia, as well as feelings of helplessness and hopelessness, whereas anxiety is characterised by overwhelming feelings of worry, nervousness, and fear, as well as autonomic overactivity symptoms such as light-headedness, sweating, epigastric discomfort, dizziness, and dry mouth.

Perceived stress refers to an individual's sentiments or perceptions about how stressed they are. Because of the chronic and severe nature of IBD, patients may experience stress associated with unpredictability and uncontrollability. Factors such as how often the patient has to deal with bothersome hassles, how much their life is changing as a result of the condition, and the confidence they have in their capacity to deal with problems or challenges is affected. What counts more than the types or frequency of stressful events that a person is experiencing is how they feel about the general stressfulness of their lives and their ability to handle such stress. People may have comparable terrible life circumstances, but may have various perspectives on them, resulting in varying degrees of impact or severity. Personality, coping resources, and support are all important factors to consider. As a result, perceived stress represents the relationship between a person and their surroundings, as well as their appraisals or assessments of it.[3]

Psychological Flexibility is the ability to remain open, present-focused, and to alter or persist in behaviour in response to changing internal and external conditions is referred to as psychological flexibility. It's a multifaceted psychological construct with emotional, cognitive, and behavioural components. Psychological flexibility has been linked to mental health and resilience in both longitude and cross-sectional studies, while a lack of psychological flexibility has been linked to psychopathology.[4] According to Kashdan and Rottenberg, psychological flexibility is the ability to "recognize and adapt to various situational demands; shift mindsets or behavioral repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviors that are congruent with deeply held values". Their definition captures two significant points about psychological flexibility: that it is a multifaceted trait, manifesting across many life domains, and that it is a dynamic that expresses itself through "repeated transactions between people and their

environmental contexts".[5] Apart from the psychosocial components of Inflammatory bowel disease discussed, there is a scarcity of empirical data on the psychological management of Inflammatory bowel disease patients in India. This research will look into the psychological elements and psychotherapeutic management of Inflammatory bowel disease patients.

INTERVENTION USED IN THE STUDY

Acceptance and commitment therapy (ACT, typically pronounced as the word "act") is a form of psychotherapy, as well as a branch of clinical behavior analysis. It is an empirically-based psychological intervention that uses acceptance and mindfulness strategies along with commitment and behavior-change strategies to increase psychological flexibility. This approach was originally termed comprehensive distancing.

Steven C. Hayes developed the treatment starting around 1982 to create an approach that integrates both covert conditioning and behavior therapy. Acceptance and Commitment Therapy (ACT) can be defined as “a psychological intervention based on modern behavioral psychology, including Relational Frame Theory, that applies mindfulness and acceptance processes, and commitment and behavior change processes, to the creation of psychological flexibility”.

Experiential avoidance is defined as the “phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them” (Hayes et al., 1996). According to the Association for Contextual Behavioral Science (ACBS). ACT is: “a unique empirically based psychological intervention that uses acceptance and mindfulness strategies, together with commitment and behavior change strategies, to increase psychological flexibility.”

According to Harris, the six core processes of ACT guide patients through therapy and provide a framework for developing psychological flexibility. These six core processes of ACT include acceptance, cognitive defusion, being present, self as context, values, and committed action. The focus of ACT is not the elimination of difficult feelings rather, it is to be present with what life brings and to "move toward valued behavior". Acceptance and commitment therapy invites people to open up to unpleasant feelings, learn not to overreact to them, and not avoid situations where they are invoked. By strengthening the psychological flexibility of individuals with IBD, ACT helps them to learn to accept and handle discomfort and pain. Its therapeutic effect aims to be a positive spiral where a greater understanding of one's emotions leads to a better understanding of the truth. In the ACT, "truth" is measured through the concept of "workability", or what works to take another step toward what matters (e.g., values, meaning).

The compassion-based intervention, created by Paul Gilbert in the early twenty-first century, is thought to be anchored in a soothing-affiliative affect regulation system that combats threat-focused emotional and cognitive patterns including despair, anxiety, shame, and self-criticism.

This study aims to implement the integrative ACT and compassion-based intervention, the Living with Intention, Fullness, and Engagement with Inflammatory Bowel Disease (LIFEwithIBD) intervention.[6]

6.2 REVIEW OF LITERATURE

The brain and gut have a unique and well-established bidirectional relationship. The gut-brain axis (GBA) connects the central nervous system (CNS) and the enteric nervous system (ENS) of the organism in a bidirectional manner. It involves both direct and indirect connections between the brain's cognitive and affective centres and peripheral gut functions.[6] Scientists have discovered that the human person is a superorganism harbouring billions of bacteria, following advances in bioinformatics and gut microbiota research in the twenty-first century. The host's cognition and behaviour are influenced by the gut flora. Mental diseases are thought to be linked to aberrant gut flora. The gut microbiome is closely associated with depression. The gut microbiome is also very important in the development of anxiety disorders such as obsessive-compulsive disorder, post-traumatic stress disorder, and panic attacks.[7] In IBD, the gut microbiota plays a critical role in the development of intestinal inflammation. Hence, keeping the brain-gut theory in mind, the psychological elements of IBD must be addressed for optimal management.

Emotional disorders (such as depression and anxiety disorders) are a group of chronic and frequently repeated psychiatric disorders that cause severe impairment in quality of life, productivity, and interpersonal functioning.[2] Anxiety and depression have been reported to be common in IBD patients, and these symptoms are exacerbated during the disease's active phase. There are reciprocal influencing processes, in which the disease experience is stressful enough to induce or exacerbate the psychiatric disorder, and anxiety or depression may be sufficient to cause or exacerbate the health condition. In addition, corticosteroid medication is likely to cause mood problems or other psychiatric symptoms.[8] Anxiety and depression risk variables were found to be strongly linked to active disease in a large sample of IBD patients. The use of methods such as

avoiding coping and teaching patients problem-solving or emotion-oriented skills could have an impact on the development of IBD.[9]

Both objective and subjective elements of ulcerative colitis activity are linked to life stress. The connection of perceived stress with rectal mucosal abnormalities in asymptomatic patients is very suggestive of a real link between psychological factors and ulcerative colitis activity, notwithstanding the possibility of recollection bias. Both doctors and patients have long acknowledged psychological stress as a factor in IBD disease activity increasing.[10] Despite this growing understanding of stress's pro-inflammatory effects on IBD, only a few small studies have looked at stress reduction as a treatment option.

Because IBD is a chronic disease, the disease burden is significant. Symptoms of sickness (fatigue, diarrhea, pain) are widespread, as are greater mortality rates and occupational incapacity. Even though IBD patients are more likely to experience sadness and anxiety, the majority of these people do not receive mental health therapy. Patients with IBD who suffer from anxiety and depression have a lower quality of life, and their illness progresses more slowly. These symptoms, together with illness symptoms, result in decreased self-care and psychosocial functioning.[2] These findings imply that gastroenterologists should test for and treat these illnesses, resulting in better patient outcomes. Due to the psychosocial constraints associated with IBD, patients with the disease report a greater need for psychological therapies.[11]

The effectiveness of compassion cultivation therapies in reducing psychological distress and psychopathological symptoms, as well as enhancing quality of life and well-being, is growing. Self-compassion (i.e., sensitivity to personal pain and a desire to alleviate and prevent it in a self-kind and courageous manner) appears to be particularly effective in combating shame and self-criticism. Self-compassion and self-criticism are controlled by separate brain systems. It's thought to be anchored in a

soothing-affiliative affect regulation system that combats threat-focused emotional and cognitive patterns including despair, anxiety, shame, and self-criticism. Self-compassion was found to be a protective factor against stress, depressive symptoms, and anxiety in a recent longitudinal study of persons with IBD. During the last decade, including self-compassion components into ACT and mindfulness-based therapies has become a prominent study subject. These techniques are thought to be complimentary and compatible. Their combination appears to offer additional benefits and to be practicable and effective in increasing quality of life, experience avoidance, shame, and self-criticism.[6]

Acceptance and Commitment Therapy has been proven effective in dealing with emotional disorders like depression and anxiety. RNT is an experience avoidance tactic that involves repetitive negative thinking. RNT is often the first reaction to traumatic private experiences. RNT-disrupting ACT regimens can be extremely effective. Ten people with emotional problems were given the RNT-focused ACT treatment. The intervention's effect sizes were substantial.[12] Another similar study involved a randomised controlled trial to compare the effectiveness of acceptance and commitment therapy (ACT) to a waiting control in the treatment of depression and generalised anxiety disorder. Simple randomization was utilised to assign 48 participants with a major diagnosis of depression and/or GAD to either a 2-session Repetitive Negative Thinking-focused ACT intervention or the waiting list control. The intervention was effective in lowering emotional symptoms during the 1-month follow-up. At the 3-month follow-up, the intervention effects were still present. In the treatment of depression and GAD, a very brief RNT-focused ACT intervention was highly successful.[13]

Other chronic and life-threatening illnesses, such as breast cancer, diabetes, and irritable bowel syndrome, have been shown to benefit from acceptance and commitment to therapy. The findings revealed that group

training based on acceptance and commitment therapy reduces anxiety and sadness effectively. As a result, psychological therapy can be utilised to help women with breast cancer cope with their emotions.[14] Focusing on the depression and mental wellness in diabetic patients, a study randomly selected an experimental group that received eight 120-minute ACT training sessions whereas the control group did not get any training. The results showed that ACT considerably improved BDI II scores when compared to the control group which suggests that diabetes patients could benefit from ACT as a treatment option for depression.[15]

Irritable Bowel Syndrome (IBS) is a widespread chronic illness that is thought to be caused by a combination of physiological, psychological, and social factors. IBS has been linked to a significant psychosocial impact on sufferers' lives. Acceptance and Commitment Therapy (ACT) is a new conceptualization and treatment approach that claims that most chronic illness suffering is caused by a lack of psychological flexibility or acceptance of unpleasant physiological sensations, ideas, or emotions. Increased psychological flexibility is a crucial change in ACT therapy that leads to better outcomes. According to recent research, ACT may not only be a successful alternative treatment for IBS, but it may also provide a useful paradigm for understanding the relationships between the various components associated with this condition and its consequences. (16) Other studies involving a brief ACT procedure found significant improvement in IBS outcomes as well as maintenance of therapeutic effects after six months.[17,18]

Research has highlighted the link between psychological flexibility, internalised stigma, and patient outcomes in an adult IBD population. Internalised stigma, lower committed action, poorer health-related quality of life, lower IBD self-efficacy, higher levels of self-concealment, higher levels of fatigue, and more beliefs about the experience and expression of negative emotions as being unacceptable were all found in people with

higher psychological inflexibility. Internalized stigma and a variety of patient outcomes were revealed to be partially mediated by psychological inflexibility (psychological distress, IBD health-related quality of life, IBD self-efficacy, and self-concealment). The association between internalised stigma and fatigue was completely mediated by psychological inflexibility. Psychological inflexibility was also discovered to modulate the link between internalised and perceived stigma. The findings imply that psychological inflexibility plays a significant role in the quality of life of people who have internalised stigma related to their IBD, and that it may even moderate the link between internalised stigma and patient outcomes. These findings point to possible therapeutic targets for psychological interventions aimed at improving the quality of life in people with IBD. Individuals with internalised stigma connected to their IBD may benefit from Acceptance and Commitment Therapy, which aims to increase psychological flexibility.[19]

Acceptance and Commitment Therapy (ACT) can help IBD patients deal with their specific difficulties. An 8-week Acceptance and Commitment Therapy course significantly improved stress and other indices of psychological health, including depression and anxiety, in a randomised controlled study of individuals with IBD.[20] Patients with IBD who had a certain level of psychological dysfunction based on a perceived stress score or a low quality of life score were enrolled in another trial. The patients received ACT in addition to usual care in eight weekly 90-minute group sessions, while the control group received only conventional care. Stress and sadness scores dropped with an improvement in overall well-being among patients assigned to the ACT programme, but the anxiety did not.[21]

For chronic illnesses, a pilot randomised controlled study of online acceptance and commitment treatment versus compassion-focused therapy was conducted. The findings indicated that low-intensity (four

sessions) online ACT and CFT are cost-effective methods for improving mental health in people with CI, including IBD. [22]

In persons with IBD, the risk of mental health difficulties is linked to increased healthcare costs. Providing comprehensive psychological care to those at risk of mental illness can save money, especially by reducing visits to emergency rooms.[23] A four-hour telemedicine ACT intervention that targeted stress and increased psychological flexibility given via a video conferencing platform was found to be effective. This comprised of a two-session ACT telehealth intervention, which included a workbook and phone counselling. Approximately half of the participants reported less stress, more engagement in worthwhile activities, and improved functioning. Although more studies and replications are needed, brief ACT therapies in this population may be helpful and cost-effective.[24] Aversive inner and outside events are frequently linked to chronic diseases. The increasing number of research back up ACT's effectiveness. In the setting of chronic somatic disorders, there is evidence that ACT can promote psychological flexibility and potentially lead to better self-management.[25]

6.3 AIMS AND OBJECTIVES OF THE STUDY

To study pre and post effects of ACT along with compassion-based intervention on depression and anxiety in patients with Inflammatory bowel disease.

To study pre and post effects of ACT along with compassion-based intervention on perceived stress in patients with Inflammatory bowel disease.

To study pre and post effects of ACT along with compassion-based intervention on psychological flexibility in patients with Inflammatory bowel disease.

To study the effect of ACT along with compassion-based intervention on depression and anxiety in the control and experimental group.

To study the effect of ACT along with compassion-based intervention on perceived stress in the control and experimental group.

To study the effect of ACT along with compassion-based intervention on psychological flexibility in the control and experimental group.

7. MATERIALS AND METHODS

7.1 SOURCE OF DATA

The study will be conducted on 100 patients diagnosed with Inflammatory bowel disease admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana.

7.2 METHOD OF COLLECTION OF DATA

SAMPLE COLLECTION- The study will be conducted on 100 patients diagnosed with Inflammatory bowel disease admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana from 18 to 65 years of age.

RESEARCH DESIGN- Pre and post design

Between-group design

SAMPLE SIZE- Total 100 patients diagnosed with Inflammatory bowel disease who are currently on medication.

SAMPLING TYPE- Purposive sampling

INCLUSION CRITERIA

1. Patients having a diagnosis of Inflammatory bowel disease and are on medication for at least 30 days.
2. Participants of age group between 18 to 65 years of either gender.
3. Subjects with formal education of at least 8 years.
4. Patients admitted to Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College and Hospital, Ludhiana.
5. Patients willing to give informed consent.

EXCLUSION CRITERIA

1. Patients not willing to give informed consent.
2. Patient diagnosed with psychotic disorders.
3. Patients undergoing psychopharmacological treatment.

METHODOLOGY

The study will be conducted on 100 patients from 18 to 65 years of age, diagnosed with Inflammatory Bowel Disease and currently on medication admitted to the Gastroenterology ward and/or visiting Gastroenterology OPD at Dayanand Medical College, and Hospital, Ludhiana. Socio-Demographic Proforma will be filled in containing the basic information of the subject. They will be evaluated by the examiner for Depression, Anxiety, Perceived Stress and Psychological Flexibility before the ACT intervention. The control group comprising of 50 patients will undergo pre and post-tests only. The experimental group comprising of 50 patients will undergo pre and post-tests with nine sessions of Acceptance and Commitment Therapy along with compassion-based intervention. One psychotherapeutic session will be conducted in one day. The duration of the session will be about 60 minutes each. The psychotherapeutic sessions will be delivered in an individual setting through online and face to face sessions. After completion of the 9th session, participants will be revaluated for Depression, Anxiety, Perceived Stress, and Psychological Flexibility.

TOOLS:

1. Socio-Demographic Proforma
2. Hospital Depression and Anxiety Scale
3. Perceived Stress Scale
4. Psychological Flexibility Scale

The Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith, 1983)

The measure of anxiety and depression in a general medical population of patients. The questionnaire comprises seven questions for anxiety and seven questions for depression and takes 2–to 5min to complete. It is useful for initial diagnosis and to track the progression (or resolution) of psychological symptoms. Most factor analyses demonstrated a two-factor

solution in good accordance with the HADS subscales for Anxiety (HADS-A) and Depression (HADS-D), respectively. The correlations between the two subscales varied from.40 to.74 (mean.56). Cronbach's alpha for HADS-A varied from.68 to.93 (mean.83) and HADS-D from.67 to.90 (mean.82). In most studies, an optimal balance between sensitivity and specificity was achieved on both HADS-A and HADS-D. The sensitivity and specificity for both HADS-A and HADS-D of approximately 0.80 were very similar to the sensitivity and specificity achieved by the General Health Questionnaire (GHQ). Correlations between HADS and other commonly used questionnaires were in the range.49 to.83. HADS was found to perform well in assessing the symptom severity and presence of anxiety disorders and depression in both somatic, psychiatric, and primary care patients and the general population.

Perceived Stress Scale (Cohen, 1988)

This is a 10-item scale assessing perceived stressfulness of different situations encountered (example item: “In the last month, how often have you felt that you were on top of things?”). Items are rated on a scale from 0 = Never to 4 = Very often, with the scale providing an overall stress score (range: 0–40) and indicating one of three levels of stress (low: 0–13, moderate: 14–26, high: 27–40). Good psychometric properties including factorial validity, hypothesis validity, and internal consistency (Cronbach’s $\alpha > .70$) have been reported in English and French (Lee, 2012), Turkish (Örücü & Demir, 2009), and Greek (Michaelides et al., 2016).

Psy-Flex scale (Gloster, Block, et al., 2020)

The Psy-Flex assesses all six ACT skills in an easy to administer process measure. Items are measured in a time- and context-sensitive manner. Psy-Flex is a short state measure of psychological flexibility exhibited during the past week. It includes 9 items loading on a single factor. Example items include: “I can look at hindering thoughts from a distance without having them control me” and “I face myself/others with tolerance,

benevolence, and compassion." Items are rated on a scale from 1 = very rarely to 5 = very often, with higher scores indicating greater psychological flexibility (range: 9 to 45). Psy-Flex has been evaluated in English and Greek across clinical and non-clinical samples with good psychometric properties (convergent validity, divergent validity, and reliability: Raykov estimation range .78–.97; Gloster, Block, et al. 2020; Paraskeva-Siamata et al., 2018).

OUTCOME:

In this study, the post-intervention evaluation will be done and it will be compared with the baseline evaluation. The findings of the present study are expected to enrich the existing fund of knowledge. This will have direct and practical implications in inculcating psychotherapeutic intervention for holistic management of patients with Inflammatory Bowel Disease.

STATISTICAL ANALYSIS:

Data will be described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases), and relative frequencies (percentages) as appropriate. To determine whether the data is normally distributed, a Kolmogorov-Smirnov test will be used. Comparison of quantitative variables between the study groups will be done using thestudent t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi-square ($\chi 2$) test will be performed and the Fisher exact test was used when the expected frequency is less than 5. A probability value (p-value) less than 0.05 will be considered statistically significant. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

NO

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Yes, attached herewith

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SOCIO-DEMOGRAPHIC PROFORMA

S.NO: - **Date:**

1. NAME:

2. AGE:

3. SEX: - Male/ Female

4. MRD.NO: -

5. Education-

a) Illiterate b) Up to Matric
c) 10th d) 12th e) Graduate f) Post graduate

6. Occupation-

a) Farmer/Clerical/Shopkeeper b) Semi-skilled/skilled worker
c) Unemployed d) Other
e) Professional f) Student

7. Address- a) Urban b) Rural

8. Contact no.-

9. Family Type- a) Nuclear b) Joint

10. Education of the Head of family

A) Professional degree
B) Graduate or post graduate
C) Intermediate or post high school diploma
D) High school certificate
E) Middle school certificate
F) Primary school certificate
G) Illiterate

11. Occupation of the head of family

A) Professional
B) Semi- professional
C) Clerical, shop owner/farm
D) Semi-skilled worker
E) Unskilled worker
F) Unemployed

12. Monthly income of the family

A) >52,734
B) 26,335-52,733
C) 19,759-26,354
D) 13,161- 19,758
E) 7,887-13,160
F) 2,641-7,886
G) <2,640

13. Socio economic status

A) Upper
B) Upper middle
C) Lower middle
D) Upper lower
E) Lower

Signature of Candidate **Signature of Supervisor**

14. Diagnosis:

15. Time since diagnosis:

16. Pharmacological treatment history:

17. PSYCHOTHERAPEUTIC INTERVENTION:

Pre-intervention scores	**HADS score:**	**PSS score:**	**PSY-FLEX score:**
SESSION 1			
SESSION 2			
SESSION 3			
SESSION 4			
SESSION 5			
SESSION 6			
SESSION 7			
SESSION 8			
SESSION 9			
Post-intervention scores	**HADS score:**	**PSS score:**	**PSY-FLEX score:**

CONTACT NO.

Signature of Candidate **Signature of Supervisor**

INFORMED PATIENT CONSENT

Date: _____

I……..D/o, W/o, S/o……. ……am willing to participate in the study "**TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE**" The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of dissertation is being carried out. I am free to opt out the study any time without assigning any reason.

……. ……

Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

<u>मरीज अनुमति फार्म</u>

तिथि_____

मैं_____ पत्नी/पुत्र/ पुत्री_____

निवासी_____

इस शोधकार्य "**TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE**"में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के करतालिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि/करती हूँ की यह स्वीकृति देने दबाव डाला के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही कर दिया गया है और मुझे यह श्य स्पष्टगया है। मुझे इस शोधकार्य का उद्दे स है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस विश्वा शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

र्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी मैं इस शोधका कर सकताअस्वीकृति व्यक्त/ करने का सकती हूँ और मेरे अस्वीकृति व्यक्त मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

_____ _____

गवाह के हस्ताक्षर रोगी के हस्ताक्षर/ अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक केहस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ_____ _____

“TO STUDY THE EFFECT OF ACCEPTANCE AND COMMITMENT THERAPY ALONG WITH COMPASSION-BASED INTERVENTION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE” ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ ।ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ ।ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

_____ _____

ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ _____ਮਿਤੀ

ਪਤਾ _____ ਪਤਾ_____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

_____

ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ